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U. S. DEPARTMENT OF AGRICULTURE,  
DIVISION OF ENTOMOLOGY—BULLETIN No. 47.

L. O. HOWARD, Entomologist.

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## CATALOGUE

OF THE

# EXHIBIT OF ECONOMIC ENTOMOLOGY

AT THE

LOUISIANA PURCHASE EXPOSITION,  
ST. LOUIS, MO., 1904.

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COMPILED UNDER THE DIRECTION OF THE ENTOMOLOGIST

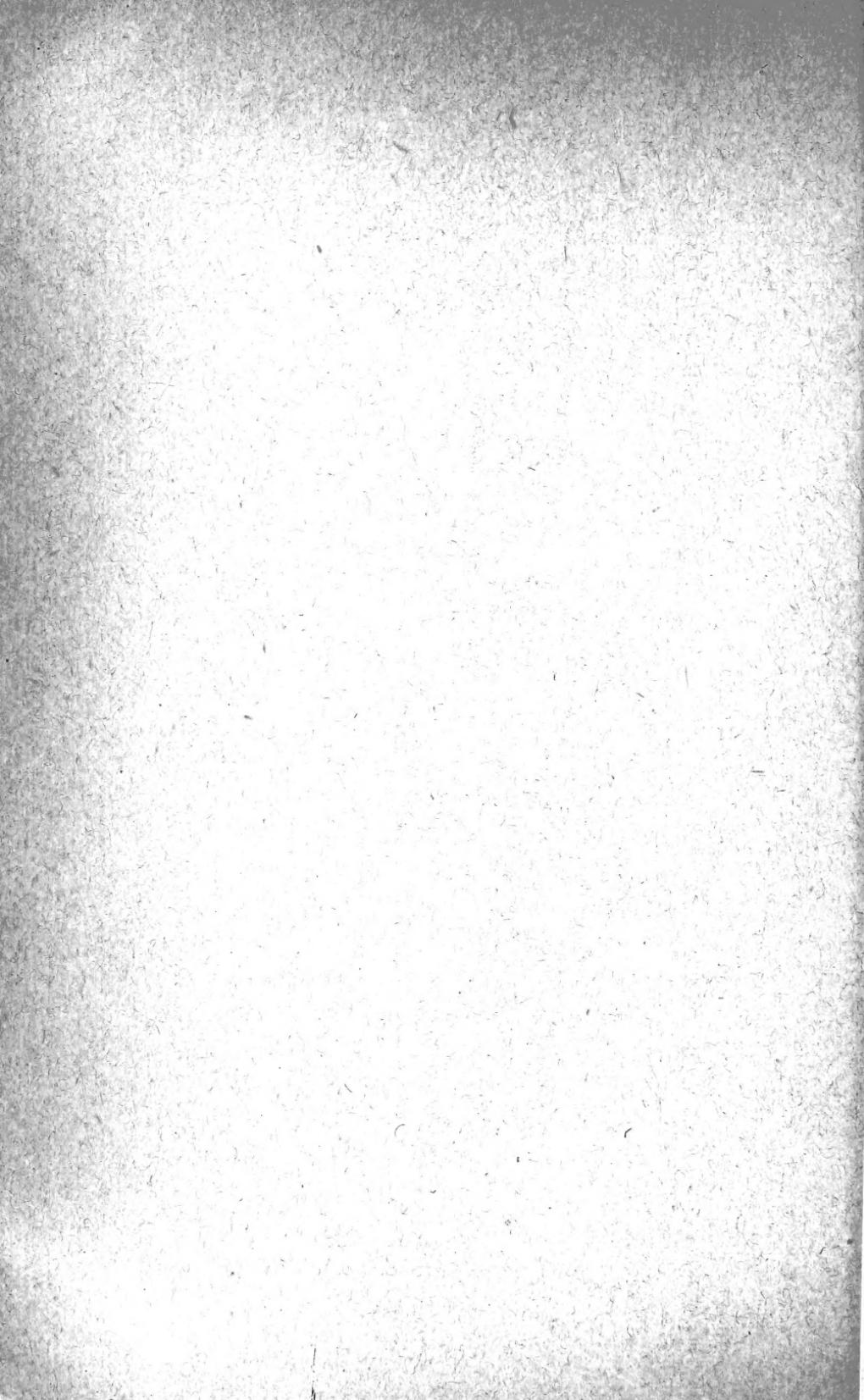
BY

E. S. G. TITUS AND F. C. PRATT.



MAY 23 1904

WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
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## LETTER OF TRANSMITTAL.

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U. S. DEPARTMENT OF AGRICULTURE,  
DIVISION OF ENTOMOLOGY,  
*Washington, D. C., March 25, 1904.*

SIR: I have the honor to transmit herewith for publication, as Bulletin No. 47, of this Division, a catalogue of the exhibit made by the Division of Entomology at the Louisiana Purchase Exposition.

Respectfully,

L. O. HOWARD.  
*Entomologist.*

Hon. JAMES WILSON,  
*Secretary of Agriculture.*

## INTRODUCTION.

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The following catalogue of the exhibit of economic entomology made by the Division of Entomology, U. S. Department of Agriculture, at the Louisiana Purchase Exposition, has been prepared with a view of increasing the usefulness of the exhibit from an economic and educational standpoint, and it is intended to supplement the exhibit by giving bibliographical references which will enable persons interested readily to gain information additional to that conveyed by the label. The general supervision of the preparation of the exhibit itself was placed by the writer in the hands of Mr. August Busck, assistant in the Division of Entomology, and in this laborious task he has had the valuable expert assistance of Mr. F. C. Pratt and Mr. E. S. G. Titus, also assistants in the Division. The catalogue itself has been compiled by Messrs. Titus and Pratt. The present catalogue does not include a consideration of the exhibit of insects injurious to forest trees, which will be published as a separate pamphlet on account of the desirability of independent distribution of this portion of the catalogue to persons interested in forestry matters.

The Division of Entomology has been represented at many international expositions, its first serious attempt to represent its work in this way having been made at the New Orleans Cotton Exposition of 1884. It was represented by large collections at the subsequent World's Fair at Chicago, at the International Exposition at Paris, at the expositions at Atlanta, Nashville, Omaha, Buffalo, and Charleston. The present exhibit, however, is, in many respects, a more interesting one than any of its predecessors. An effort has been made to illustrate in all of their stages the principal insects injurious to North American crops. Further attempts have been made to show the economic relations of insects in other respects and, on account of the great current interest in the subject of the spread of disease by insects, more attention has been paid to this subject than ever before. Special cases illustrating insects of the greatest immediate popular interest have been prepared, and a series of models of the most prominent economic insects of the day is shown. An effort has been made to introduce a novel feature in this exhibit, namely, living insects feeding under as natural conditions as possible, which will probably prove of quite as great interest to visitors as the illustrative cases of dried specimens.

In the bibliographical references under the titles of the individual exhibits in this catalogue the most comprehensive general articles have been indicated, and especial care has been taken to quote such publications as are most accessible. Reference to many of the earlier articles may be found in Bul. 31, Div. Ent., U. S. Dept. Agric., 1893, this being an index to the exhibit at the World's Columbian Exposition. In the systematic index the more important recent changes in entomological nomenclature have been cared for by cross references from old names to new names for both genera and species.

Persons desiring further information than can be gained from this catalogue or from conversation with the attendant in charge of exhibit are requested to address the writer at the U. S. Department of Agriculture, Washington, D. C.

L. O. HOWARD,  
*Entomologist.*

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# CATALOGUE OF THE EXHIBIT OF ECONOMIC ENTOMOLOGY AT THE LOUISIANA PURCHASE EXPOSITION.

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## INSECTS INJURIOUS TO ORANGE AND LEMON.

For general articles relating to insects affecting these fruits see Hubbard, 1885, and Insects Affecting the Orange, U. S. Dept. Agric., Marlatt, Scale Insects and Mites of Citrus Fruits, Farmers' Bul. 172, 1903.

### THE APPLE TWIG-BEETLE.

*Stephanoderes hispidulus* Lec.

(Formerly *Hypothenemus eruditus* auct.)

EXHIBIT: Adult and work.

### THE OAK AMBROSIA BEETLE.

*Xyleborus affinis* Eichh.

For general account see Hubbard, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., pp. 19-20, 1897, under *X. pubescens* Zimm.

EXHIBIT: Adult, work, and figure.

### THE PAN-AMERICAN PLATYPUS.

*Platypus compositus* Say.

For general article see Hubbard, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., pp. 14-16, 1897.

EXHIBIT: Adult, work, and figure.

### FULLER'S ROSE BEETLE.

*Aramigus fulleri* Horn.

For general account of life history see Chittenden, Bul. 27, n. s., Div. Ent., U. S. Dept. Agric., pp. 88-96, 1901.

EXHIBIT: Adult.

### THE COFFEE-BEAN WEEVIL.

*Aracerus fasciculatus* De G.

For partial life history and general account see Chittenden, Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., pp. 36-38, 1897.

EXHIBIT: Adult and work.

**THE ORANGE CHRYSOBOTHRIS.***Chrysobothris chrysocela* Ill.

EXHIBIT: Adult.

**EPISTRAGUS TOMENTOSUS** Lec.

EXHIBIT: Adult.

**PACHNAEUS DISTANS** Horn.

EXHIBIT: Adult.

**ORANGE LEAF-NOTCHER.***Artipus floridanus* Horn.

EXHIBIT: Adult and work.

**THE ORANGE SAWYER.***Elaphidion inerme* Newm.

For general account see Chittenden, Bul. 18, n. s., Div. Ent., U. S. Dept. Agric., p. 41, 1898.

EXHIBIT: Adult and work.

**LEPTOSTYLUS BIUSTUS** Lec.

EXHIBIT: Adult and work.

**THE ORANGE DOG; HOG CATERPILLAR.***Papilio thoas* Linn.(Also called *P. cresphontes*.)

For brief account of larva see Lintner, 9th Rpt. State Ent. N. Y., pp. 336-337, 1893.

EXHIBIT: Eggs, larva, chrysalis, adult, and figure.

**ORANGE LEAF-ROLLER.***Platynota rostrana* Walk.

EXHIBIT: Eggs, pupa, and adult.

**THE SADDLE-BACK CATERPILLAR.***Sibine stimulea* Clem.(Formerly *Empretia*.)

For general account see Lugger, 4th Rept. State Ent. Minn., pp. 98-99, 1899.

EXHIBIT: Pupa, adult, and figure.

**THE COMMON BAGWORM.***Thyridopteryx ephemeraeformis* Steph.

For general account see Packard, 5th Rpt. U. S. Ent. Com., pp. 258-262, 1890.

EXHIBIT: Larva, cocoon, adult, and figure.

**THE STINGING CATERPILLAR.***Megalopyge opercularis* S. and A.

For short account see Lugger, 4th Rpt. State Ent. Minn., pp. 95-96, 1899.

EXHIBIT: Cocoon and adult.

**THE SKIFF CATERPILLAR.***Prolimacodes scapha* Harr.

(Larva feeds on leaves.)

EXHIBIT: Adult.

**THE ORANGE CASE-BEARER.***Eurycttarus confederata* Grt.(Larvæ feed upon lichens on tree trunk, occasionally gnawing fruit; formerly *Psyche*.)

EXHIBIT: Cases on twig.

**THE TWO-SPOTTED RED SPIDER.***Tetranychus bimaculatus* Harr.

For description and distribution see Banks, Tech. series 8, Div. Ent., U. S. Dept. Agric., pp. 73-74, 1900.

For general account see Chittenden, Bul. 27, n. s., Div. Ent., U. S. Dept. Agric., pp. 35-42, 1901.

EXHIBIT: Figure.

**THE ORANGE WHITE SPOT.***Tetranychoides californica* Bks.

For description see Banks, Journ. N. Y. Ent. Soc., v. XII, p. 54, pl. II, fig. 1, 1904.

EXHIBIT: Work and figure.

**THE ORANGE FRUIT MITE.***Tenuipalpus californicus* Bks.

For description see Banks, Journ. N. Y. Ent. Soc., v. XII, p. 55, pl. II, fig. 2, 1904.

EXHIBIT: Work and figure.

**RUST MITE OF THE ORANGE; THE SILVER MITE OF THE LEMON.***Eriophyes oleivorus* Ashm.(Formerly *Phytoptus*.)

EXHIBIT: Figure.

**THE TWO-STRIPED WALKING-STICK.***Anisomorpha buprestoides* Stål.

EXHIBIT: Nymph and adult.

**THE ANGULAR-WINGED KATYDID.***Microcentrum retinerve* Burm.

EXHIBIT: Eggs, adult; and parasitized eggs.

**NORTHERN MOLE CRICKET.***Gryllotalpa borealis* Burm.

EXHIBIT: Nymph and adult.

**THE LUBBER GRASSHOPPER.***Dictyophorus reticulatus* Thunb.

For brief account see Morgan, Bul. 30, n. s., Div. Ent., U. S. Dept. Agr., pp. 28-29, 1901.

EXHIBIT: Nymph and adult.

**THE COTTON STAINER.***Dysdercus suturellus* H-Schf.

For short accounts see Howard, Farmers' Bul. 47, U. S. Dept. Agric., pp. 30-31, 1897; Insect Book, p. 308, fig. 201 and pl. 31, fig. 15, 1901.

EXHIBIT: Nymph, adult, and figure.

**EUTHOCTHA GALEATOR** Fab.

EXHIBIT: Adult.

**THE SOUTHERN LEAF-FOOTED PLANT-BUG.***Leptoglossus phyllopus* Linn.

For general account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 46-48, 1899.

EXHIBIT: Adult.

**EUSCHISTUS SERVUS** Say.

EXHIBIT: Adult.

**NEZARA HILARIS** Say.

EXHIBIT: Adult.

**WHITE FLY; MEALY WING.***Aleyrodes citri* R. & H.

For general account see Marlatt, Farmers' Bul. U. S. Dept. Agric., 172, pp. 36-38, 1903.

EXHIBIT: Adult, work and figure.

**ORANGE APHIS; COTTON APHIS.***Aphis gossypii* Glover.

(Curls leaves and stops young growth; usually well controlled by parasites and other enemies.)

For short account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 58-61, 1903.

EXHIBIT: Eggs, adult, work, figure, and the enemies: *Baccha clavata*, *Hemerobius* sp., *Chrysopa plorabunda*, and a hymenopterous parasite.

**COTTONY CUSHION SCALE; FLUTED SCALE.***Icerya purchasi* Mask.

(Food plants: Acacia, cypress, grasses, lemon, orange, pine, rose; see under "The more important scale insects" for life history and enemies.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 25-27, 1903.

EXHIBIT: Infested twig.

**THE DESTRUCTIVE MEALY-BUG.***Pseudococcus citri* Risso.

(Formerly *Dactylopius destructor*.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 99-100, 1903.

EXHIBIT: Infested leaves.

**THE LONG-SPINED MEALY-BUG.***Pseudococcus longispinus* Targ.

(Formerly *Dactylopius* spp. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 104-105, 1903.

**EXHIBIT:** Infested leaves.

**THE FLORIDA WAX-SCALE.***Ceroplastes floridensis* Comst.

(Food plants: Citrus, fig, myrtle, oleander.)

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., p. 157, 1903.

**EXHIBIT:** Infested leaves.

**THE BARNACLE SCALE.***Ceroplastes cirripediformis* Comst.

(Food plants: Myrtle, orange, persimmon, quince.)

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., p. 150, 1903.

**EXHIBIT:** Infested leaves.

**THE SOFT SCALE.***Coccus hesperidum* Linn.

(Food plants: Laurel, lemon, myrtle, oleander, orange, etc.; formerly a *Lecanium*; see under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 168-170, 1903.

**EXHIBIT:** Infested twig.

**THE HEMISPHERICAL SCALE.***Saissetia hemisphaerica* Torg.

(Food plants: Oleander, orange, peach, etc.; formerly a *Lecanium*; see under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 202-203, 1903.

**EXHIBIT:** Infested twig.

**THE BLACK SCALE.***Saissetia oleæ* Bern.

(Food plants: Apple, apricot, olive, orange, pear, plum, rose; formerly a *Lecanium*; see under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 205-206, 1903.

**EXHIBIT:** Infested twig.

**THE OLEANDER SCALE.***Aspidiotus hederæ* Vall.

(Food plants: Currant, box, cherry, olive, oleander, orange, etc.; formerly *A. nerii* Bouché; see under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 260-264, 1903.

**EXHIBIT:** Infested twig.

**THE ORANGE CHIONASPIS.***Chionaspis citri* Comst.

(Food plants: Euonymus, orange, palms; see under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bull. 88, Mass. Agr. Coll., pp. 214-215, 1903; Marlatt, Yearbook, U. S. Dept. Agric., 1900, p. 270, 1901.

**EXHIBIT:** Infested twig.

**THE RED SCALE OF CALIFORNIA.***Chrysomphalus aurantii* Mask.

(Food plants: Agave, apple, fig, grape, lemon, orange, pear, plum, quince, willow, etc., formerly *Aspidiotus*; see under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 287-288, 1903; Marlatt, Yearbook, U. S. Dept. Agric., 1900, p. 268, 1901.

**EXHIBIT:** Infested twig.

**THE CIRCULAR SCALE.***Chrysomphalus ficus* Ashm.

(Food plants: Lemon, oleander, orange, palm, rose, etc.; see under "More important scale insects.")

For bibliography and food plants see *Chrysomphalus aonidum*, Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 286-287, 1903; Marlatt, Yearbook, U. S. Dept. Agric., 1900, p. 269, 1901.

**EXHIBIT:** Infested twig.

**THE PURPLE SCALE.***Lepidosaphes beckii* Newm.

(Food plants: Citron, fig, lemon, oak, orange. Formerly known as *Mytilaspis citricola* Glov.; see under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 305-306, 1903; Marlatt, Yearbook, U. S. Dept. Agric., 1900, p. 261, 1901.

**EXHIBIT:** Infested twig.

**GLOVER'S SCALE; LONG SCALE.**

*Lepidosaphes gloveri* Pack.

(Food plants: Lime, magnolia, orange, palms. Formerly called *Mytilaspis*; see under "More important scale insects," for figures and enemies.)

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., p. 309, 1903; Marlatt, Yearbook, U. S. Dept. Agric., 1900, p. 265, 1901.

EXHIBIT: Infested twig.

**THE CHAFF SCALE.**

*Parlatoria pergandei* Comst.

(Food plants: Japonica, lemon, orange; see under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 319-320, 1903; Marlatt, Yearbook U. S. Dept. Agric., 1900, p. 270, 1901.

EXHIBIT: Infested twigs.

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**THE MORE IMPORTANT SCALE INSECTS.****COTTONY CUSHION SCALE; FLUTED SCALE.**

*Icerya purchasi* Mask.

(Food plants: Acacia, cypress, grasses, lemon, orange, pine, rose; etc.)

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 25-27, 1903.

EXHIBIT: Infested twigs, illustrations and enemies: *Chilocorus cacti*, *Corizus hyalinus*, *Novius cardinalis*, and *Piesma cinerea*.

**THE LONG-SPINED MEALY-BUG.**

*Pseudococcus longispinus* Targ.

(Formerly *Dactylopius* spp.)

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 104-105, 1903.

EXHIBIT: Infested leaves and figures.

**THE DESTRUCTIVE MEALY-BUG.**

*Pseudococcus citri* Risso.

(Formerly *Dactylopius destructor*.)

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 99-100, 1903.

EXHIBIT: Infested leaves.

**COTTONY MAPLE SCALE.***Pulvinaria innumerabilis* Rathv.

(Food plants: Alder, apple, box-elder, elm, grape, linden, maples, oak, willow, etc.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 134-135, 1903; Howard, Bul. 22, n. s. Div. Ent. U. S. Dept. Agric., pp. 8-16, 1900, figs.

EXHIBIT: Infested twigs and figures.

**THE BARNACLE SCALE.***Ceroplastes cirripediformis* Comst.

(Food plants: Myrtle, orange, persimmon, quince.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., p. 150, 1903.

EXHIBIT: Infested twig.

**THE FLORIDA WAX-SCALE.***Ceroplastes floridensis* Comst.

(Food plants: Citrus, fig, myrtle, oleander.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., p. 157, 1903.

EXHIBIT: Infested twigs.

**THE SOFT SCALE.***Coccus hesperidum* Linn.

(Food plants: Laurel, lemon, myrtle, oleander, orange, etc.; formerly a *Lecanium*.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 168-170, 1903.

EXHIBIT: Infested twigs and figures.

**THE TERRAPIN SCALE.***Eulecanium nigrofasciatum* Perg.

(Food plants: Apple, birch, linden, maple, peach, plum, sycamore; formerly *Lecanium*.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., p. 191, 1903; Pergande, Bul. 18, n. s. Div. Ent., U. S. Dept. Agric., pp. 26-29, 1898, figs.

EXHIBIT: Infested twig and figures.

**THE HEMISPHERICAL SCALE.***Saissetia hemisphaerica* Targ.

(Food plants: Oleander, orange, peach, etc.; formerly a *Lecanium*.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 202-203, 1903.

EXHIBIT: Infested twig.

**THE BLACK SCALE.***Saissetia oleæ* Bern.

(Food plants: Apple, apricot, olive, orange, pear, plum, rose; formerly a *Lecanium*.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 205–206, 1903.

**EXHIBIT:** Infested twig, and parasite *Coccophagus cognatus* How.

**THE ORANGE CHIONASPIS.***Chionaspis citri* Comst.

(Food plants: Enonymus, orange, palms, etc.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 214–215, 1903; Marlatt, Yearbook, U. S. Dept. Agric., f. 1900, p. 270, 1901.

**EXHIBIT:** Infested twig.

**THE SCURFY BARK-LOUSE.***Chionaspis furfuræ* Fitch.

(Food plants: Apple, cherry, currant, elm, pear, etc.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 217–219, 1903; Howard, Yearbook, U. S. Dept. Agric., f. 1894, pp. 259–261, 1895, figs.; Banks, Bul. 34, Div. Ent., U. S. Dept. Agric., p. 14, 1902.

**EXHIBIT:** Infested twig and figures.

**THE WEST INDIAN PEACH SCALE.***Diaspis pentagona* Targ.

For bibliography and partial list of food plants under *Aulacaspis* see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 234–235, 1903; Riley and Howard, Ins. Life, Vol. VI, pp. 287–295, 1894, figs.; Banks, Bul. 34, Div. Ent., U. S. Dept. Agric., p. 21, 1902.

**EXHIBIT:** Infested twigs and figures.

**THE ROSE SCALE.***Aulacaspis rosæ* Bouche.

(Food plants: Blackberry, mango, myrtle, pear, raspberry, rose, Cycas, Ailanthus, etc.)

For bibliography see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., p. 236, 1903; Banks, Bul. 34, Div. Ent., U. S. Dept. Agric., p. 23, 1902.

**EXHIBIT:** Infested twig and figure.

**THE HORSE-CHESTNUT SCALE.***Aspidiotus aesculi* Johns.

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 251–252, 1903.

**EXHIBIT:** Infested twigs.

**PUTNAM SCALE; CRANBERRY SCALE.***Aspidiotus ancyclus* Putn.

(Food plants: Apple, apricot, box-elder, cottonwood, cranberry, elm, hemlock, maple, oak, peach, pear, plum, etc.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 252-253, 1903.

EXHIBIT: Infested twig.

**THE LINDEN SCALE.***Aspidiotus diffinis* Newst.

(Food plants: Basswood, lilac.)

For bibliography see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., p. 257, 1903.

EXHIBIT: Infested twigs.

**THE EUROPEAN FRUIT SCALE.***Aspidiotus ostreiformis* Curt.

(Food plants: Apple, cherry, maple, oak, peach, pear, etc.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 268-270, 1903.

EXHIBIT: Infested twig and figures.

**THE CHERRY; FORBES' SCALE.***Aspidiotus forbesi* Johns.

(Food plants: Apple, cherry, currant, honey locust, peach, pear, plum, walnut, etc.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 259-260, 1903.

EXHIBIT: Infested twig and figure.

**THE GRAPE SCALE.***Aspidiotus uvæ* Comst.

(Food plants: Grape, hickory.)

For bibliography see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., p. 280, 1903.

EXHIBIT: Infested twig and figure.

**THE WALNUT SCALE.***Aspidiotus juglans-regiae* Comst.

(Food plants: Ash, cherry, crab apple, currant, English walnut, locust, peach, pear, prune, etc.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., p. 265, 1903.

EXHIBIT: Infested twig and figure.

**PALM SCALE.**

*Aspidiotus lataniae* Sign.

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 266-267, 1903.

EXHIBIT: Infested twig and leaves.

**THE SAN JOSE SCALE.**

*Aspidiotus perniciosus* Comst.

(Food plants: Almond, apple, apricot, birch, black walnut, black currant, catalpa, chestnut, crab apple, crab grass, cherry, grape, hickory, oak, peach, pear, persimmon, plum, poplar, prune, Rocky Mountain cherry, rose, silver maple, willow, and many other plants.)

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 271-275, 1903; Howard and Marlatt, Bul. 3, n. s. Div. Ent. U. S. Dept. Agric., 1896, 80 pp.

EXHIBIT: Infested twig, fruit, figures, and enemies: *Smilia misella* Lec., adult and figure; *Chilocorus similis* Rossi, larva, pupa, adult, and figure; parasite *Aphelinus diaspidis* How., adult and figure.

**THE GREEDY SCALE.**

*Aspidiotus rapax* Comst.

(Food plants: Cottonwood, maple, olive, pear, quince, apple, etc.)

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 276-278, 1903.

EXHIBIT: Infested twig and figure.

**THE OLEANDER SCALE.**

*Aspidiotus hederae* Vall.

(Food plants: Currant, box, cherry, olive, oleander, orange, etc.; formerly *A. nerii* Bouché.)

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 260-264, 1903.

EXHIBIT: Infested twig and figure.

**THE CIRCULAR SCALE.**

*Chrysomphalus ficus* Ashm.

(Food plants: Lemon, oleander, orange, palm, rose, etc.; formerly *Aspidiotus*.)

For bibliography and food plants see *Chrysomphalus aonidum*, Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 286-287, 1903; Marlatt, Yearbook U. S. Dept. Agric. f. 1900, p. 269, 1901.

EXHIBIT: Infested twig and figure.

**THE CALIFORNIA RED SCALE.***Chrysomphalus aurantii* Mask.

(Food plants: Agave, apple, fig, grape, lemon, orange, pear, plum, quince, willow, etc.; formerly *Aspidiotus*.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 287-288, 1903; Marlatt, Yearbook, U. S. Dept. Agric., 1900, p. 268, 1901.

EXHIBIT: Infested twig and figure.

**GLOVER'S SCALE; LONG SCALE.***Lepidosaphes gloveri* Pack.

(Food plants: Lime, magnolia, orange, palms; formerly *Mytilaspis*.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 309, 1903; Marlatt, Yearbook, U. S. Dept. Agric., 1900, p. 265, 1901.

EXHIBIT: Infested twig, figures, and the following enemies: *Chilocorus bivulnerus* Muls., *C. cacti* Linn., *Coccinella abdominalis* Say, *C. californica* Mann., *C. sanguinea* Linn., *C. oculata* Fabr., *Dakruma coccidivora* Comst., *Exochomus contrastatus* Muls., *Hippodamia ambigua* Lec., *H. convergens* Guen., *Hyperaspidius coccidivora* Ashm., *Scymnus bioculatus* Muls., *S. cervicalis* Muls.

**OYSTER-SHELL BARK-LOUSE.***Lepidosaphes ulmi* Linn.

(Attacks principally apple, currant, *Cornus*, cottonwood, lilac, pear, sassafras, etc.; formerly called *Mytilaspis pomorum* Bouché.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 314-317, 1903.

EXHIBIT: Infested twig and figure.

**THE PURPLE SCALE.***Lepidosaphes beckii* Newm.

(Food plants: Citron, fig, lemon, oak, orange; formerly known as *Mytilaspis citricola* Glov.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 305-306, 1903; Marlatt, Yearbook, U. S. Dept. Agric., 1900, p. 261.

EXHIBIT: Infested twig and figure.

**THE CHAFF SCALE.***Parlatoria pergandei* Comst.

(Food plants: Japonica, lemon, orange.)

For bibliography and food-plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 319-320, 1903; Marlatt, Yearbook, U. S. Dept. Agric., 1900, p. 270.

EXHIBIT: Infested twigs and figure.

**WHITE FLY; MEALY WING.***Aleyrodes citri* R. & H.

For general articles see Marlatt, Farmers' Bul. 172, U. S. Dept. Agric., pp. 36-38, 1903; also Ins. Life, v. V, pp. 219-226, 1893.

**EXHIBIT:** Adult, work, and figure.

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**INSECTS INJURIOUS TO APPLE.**

For special treatises on apple insects see Bruner, Trans. Nebr. St. Hort. Soc. f. 1894, pp. 155-223, 1895; Harvey and Munson, Bul. 56, Maine Agr. Expt. Sta., 1899; Saunders, Insects Injurious to Fruits, 2d ed., pp. 13-139, 1900.

**INJURING THE ROOTS.****THE WOOLLY APPLE APHIS.***Schizoneura lanigera* Hausm.

For general account see Marlatt, Cir. 20, Div. Ent., U. S. Dept. Agric., 1897.

**EXHIBIT:** Work, figure, parasite, *Aphelinus mali* Hal.; and enemy *Scymnus cervicalis* Muls.

**INJURING THE TRUNK.****FLAT-HEADED APPLE-TREE BORER.***Chrysobothris femorata* Fab.

For general account see Chittenden, Cir. 32, Div. Ent., U. S. Dept. Agric., pp. 9-12, 1898.

**EXHIBIT:** Adult, work, and figure.

**ROUND-HEADED APPLE-TREE BORER.***Saperda candida* Fab.

For general account see Chittenden, Cir. 32, Div. Ent., U. S. Dept. Agric., pp. 1-8, 1898.

**EXHIBIT:** Adult, work, and figure.

**APPLE-WOOD STAINER; PIN-BORER.***Pterocyclon mali* Fitch.

(Formerly *Monarthrum*.)

For general account of this and an allied species, *M. fasciatum*, see Hubbard, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., pp. 26-28, 1897.

**EXHIBIT:** Adult and figure.

**INJURING THE BRANCHES.****THE APPLE-TREE PRUNER.***Elaphidion villosum* Fabr.

For full account and food plants see Chittenden, Bul. 18, n. s., Div. Ent., U. S. Dept. Agric., pp. 35-40, 1898.

EXHIBIT: Adult, work, and figure.

**THE NEW YORK WEEVIL.***Ithycerus noveboracensis* Först.

For general account see Lugger, 5th Rpt. St. Ent. Minn., pp. 187-189, 1899.

EXHIBIT: Adult and work.

**THE APPLE TWIG-BORER.***Amphicerus bicaudatus* Say.

For general account see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 11-13, fig., 1898.

EXHIBIT: Adult, work, and figure.

**THE APPLE TWIG-BEETLE.***Stephanoderes hispidulus* Lec.

(Formerly called *Hypothenemus*.)

EXHIBIT: Adult and work.

**PEAR-BLIGHT BEETLE; SHOT-BORER.***Xyleborus pyri* Peck.

(Formerly called *X. dispar*.)

For general account see Hubbard, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., pp. 22-23, 1897.

EXHIBIT: Adult and work.

**THE COSMOPOLITAN AMBROSIA BEETLE.***Xyleborus saxeseni* Ratz.

(Formerly called *X. xylographus*.)

For general account see Hubbard, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., pp. 24-26, 1897.

EXHIBIT: Adult.

**FRUIT-TREE BARK BEETLE; THE SHOT-HOLE BORER.***Scolytus rugulosus* Ratz.

For general account see Chittenden, Cir. 29, Div. Ent., U. S. Dept. Agric., 1898.

EXHIBIT: Adult and figure.

**THE BUFFALO TREE-HOPPER.***Ceresa bubalus* Say.

For general account see Marlatt, Cir. 23, Div. Ent., U. S. Dept. Agric., 1897.

EXHIBIT: Adult, work, and figure.

**THE PERIODICAL CICADA.***Tibicen septendecim* Linn.

(See special case containing life history, with illustrations of this insect and its work.)

For life history and general article see Marlatt, Bul. 14, n. s., Div. Ent., U. S. Dept Agric., 1898.

**EXHIBIT:** Pupa, pupa skins, and adult.

**THE SAN JOSE SCALE.***Aspidiotus perniciosus* Comst.

(Food plants: Almond, apple, apricot, birch, black walnut, black currant, catalpa, chestnut, crab apple, crab grass, cherry, grape, hickory, oak, peach, pear, persimmon, plum, poplar, prune, Rocky Mountain cherry, rose, silver maple, willow, and many other plants. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 271-275, 1903; Howard and Marlatt, Bul. 3, n. s., Div. Ent., U. S. Dept. Agric., 1896. 80 pp.

**EXHIBIT:** Infested twig.

**PUTNAM SCALE; CRANBERRY SCALE.***Aspidiotus aculeatus* Putn.

(Food plants: Apple, apricot, box elder, cottonwood, cranberry, elm, hemlock, maple, oak, peach, pear, plum, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 252-253, 1903.

**EXHIBIT:** Infested twig.

**THE CHERRY SCALE; FORBES' SCALE.***Aspidiotus forbesi* Johns.

(Food plants: Apple, cherry, currant, honey locust, peach, pear, plum, walnut, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 259-260, 1903.

**EXHIBIT:** Infested twig.

**THE GREEDY SCALE.***Aspidiotus rapax* Comst.

(Food plants: Cottonwood, maple, olive, pear, quince, apple, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 276-278, 1903.

**EXHIBIT:** Infested twig.

**THE EUROPEAN FRUIT-SCALE.***Aspidiotus ostreiformis* Curt.

(Food plants: Apple, cherry, maple, oak, peach, pear, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 268-270, 1903.

EXHIBIT: Infested twig.

**THE SCURFY BARK LOUSE.***Chionaspis furfura* Fitch.

(Food plants: Apple, cherry, currant, elm, pear, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 217-219, 1903; Howard, Yearbook, U. S. Dept. Agric., 1894, pp. 259-261, figs.; Banks, Bul. 34, Div. Ent., U. S. Dept. Agric., p. 14, 1902.

EXHIBIT: Infested twig.

**OYSTER-SHELL BARK-LOUSE.***Lepidosaphes ulmi* Linn.

(Attacks principally apple, currant, *Cornus*, cottonwood, lilac, pear, sassafras, etc. Formerly called *Mytilaspis pomorum* Bouché. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 314-317, 1903.

EXHIBIT: Infested twig.

**THE BLACK SCALE.***Saissetia oleæ* Bern.

(Food plants: Apple, apricot, olive, orange, pear, plum, rose; formerly a Lecanium. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 205-206, 1903.

EXHIBIT: Infested twig.

**INJURING THE LEAVES.****PISTOL CASE-BEARER.***Coleophora malivorella* Riley.

(Feeds on leaves and buds.)

For general account see Slingerland, Bul. 124, Cornell Univ. Agr. Expt. Sta., 1897.

EXHIBIT: Cocoon, adult, work, and figure.

**EYE-SPOTTED BUD-MOTH.***Tmetocera ocellana* Schiff.

(Feeds on buds and young leaves.)

For general account see Slingerland, Bul. 50, Cornell Univ. Agr. Expt. Sta., 1893.

EXHIBIT: Pupa, adult, and work.

**APPLE-TREE BUCCULATRIX.***Bucculatrix pomifoliella* Clem.

For general account and partial bibliography see Slingerland and Fletcher, Bul. 214, Cornell Univ. Agr. Expt. Sta., pp. 69-78, figs., 1903.

EXHIBIT: Cocoon, adult, and figure.

**THE RESPLENDENT SHIELD-BEARER.***Coptodisca splendoriferella* Clem.

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 263-265, 1899.

EXHIBIT: Cocoon, adult, work, and figure.

**CHAPIN'S APPLE-LEAF SEWER.***Ancylis nubeculana* Clem.

For brief article see Lugger, 4th Rpt. St. Ent. Minn., pp. 239-240, 1899.

EXHIBIT: Pupa, adult, work, and figure.

**THE OBLIQUE-BANDED LEAF-ROLLER.***Archips rosaceana* Harr.

(Formerly *Cacoecia*.)

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 226-227, 1899.

EXHIBIT: Pupa, adult, and work.

**THE LESSER APPLE LEAF-FOLDER.***Acleris minuta* Rob.

(Formerly *Teras*.)

For general account see J. B. Smith, Farmers' Bul. 178, U. S. Dept. Agric., pp. 12-17, 1903.

EXHIBIT: Pupa and adult.

**THE LEAF CRUMPLER.***Mineola indiginella* Zell.

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 211-213, 1899.

EXHIBIT: Cocoon, pupa, adult, and figure.

**THE APPLE-LEAF SKELETONIZER.***Canarsia hammondi* Riley.

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 217-218, 1899.

EXHIBIT: Pupa, adult, and work.

**APPLE-TREE TENT-CATERPILLAR.***Malacosoma americana* Fab.(Formerly *Clisiocampa*.)

For life history and bibliography see Felt, 14th Rpt. St. Ent. N. Y., pp. 177-190, 1898.

EXHIBIT: Eggs, larva, cocoon, pupa, adult and work, and the parasites; *Pimpla conquisitor* Say, and *Ichneumon laetus* Brullé.**THE LIME-TREE WINTER-MOTH.***Erannis tiliaria* Harr.(Formerly *Hibernia*.)

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 193-195, 1899.

EXHIBIT: Pupa, adult, and figure.

**THE ELM SPAN-WORM.***Ennomos subsignarius* Hbn.

For general account see Packard, 5th Rpt. U. S. Ent. Comm., pp. 232-233, 306-307, 1890.

EXHIBIT: Eggs, larva, pupa, and work.

**THE APPLE LEAF-MINER.***Tischeria malifoliella* Clem.

For life history and bibliography see Lintner, 11th Rpt. N. Y. St. Ent., pp. 160-162, 1896.

EXHIBIT: Adult and work.

**THE SPRING CANKER-WORM.***Paleacrita vernata* Peck.

For general account see Coquillett, Circ. 9, Div. Ent., U. S. Dept. Agric., pp. 1-3, 1895.

EXHIBIT: Larva, adult, and figure.

**THE FALL CANKER-WORM.***Alsophila pometaria* Harr.(Formerly *Anisopteryx*.)

For general account see Coquillett, Circ. 9, Div. Ent., U. S. Dept. Agric., pp. 3-4, 1895.-

EXHIBIT: Eggs, larva, cocoon, adult, and figure.

**THE WHITE-MARKED TUSSOCK-MOTH.***Hemerocampa leucostigma* S. & A.

(Larvæ feed extensively upon fruit and shade trees and often damage shrubs and vines; see special case containing life history and parasites.)

For general account of this insect and its parasites see Howard, Tech. Ser., 5, Div. Ent., U. S. Dept. Agric., 1897; for life history, etc., Howard, Farmers' Bul. 99, pp. 12-20, 1899.

EXHIBIT: Egg-masses, larva, and adult.

**THE FALL WEB-WORM.***Hyphantria cunea* Dru.

For general account see Howard, Farmers' Bul. 99, U. S. Dept. Agric., pp. 20-25, 1899.

EXHIBIT: Larva, pupa, adult, and work.

**THE COMMON BAGWORM.***Thyridopteryx ephemeraeformis* Steph.

For general account see Packard, 5th Rpt. U. S. Ent. Comm., pp. 258-262, 1890.

EXHIBIT: Cocoons and figure.

**IO MOTH.***Automeris io* Fab.

For general account see Lugger, 4th Rpt. State Ent. Minn., pp. 126-129, fig. 130, and pl. 16, fig. 129, 1899.

EXHIBIT: Adult.

**THE BROWN-TAIL MOTH.***Euproctis chrysorrhœa* Linn.

For life history and general article see Fernald and Kirkland, Spec. Bul. Hatch. Expt. Sta., Mass., 15 pp., 1 fig., 3 pls., 1898.

EXHIBIT: Larva, adult and figure.

**THE GYPSY MOTH.***Porthezia dispar* Linn.

For life history, habits and general account see Forbush and Fernald, "The Gypsy Moth," 495 pp. + i-c, 1896; Howard, Bul. 11, n. s., Div. Ent., U. S. Dept. Agric., 1897.

EXHIBIT: Larva, adult, and figure.

**THE CLIMBING CUTWORM.***Euxoa scandens* Riley.

(Formerly *Carneades*.)

For general account see Slingerland, Bul. 104, Cornell Univ. Agr. Expt. Sta., pp. 567-569, Pl. I, 1895.

EXHIBIT: Adult.

**APPLE-TREE APHIS.***Aphis mali* Fitch.

For general account see Smith, Bul. 143, N. J. Agr., Expt. Sta., 1900.

For general article treating of several species occurring on apple see Pergande, Bul. 44 Div. Ent., U. S. Dept. Agric., pp. 5-23, 1904.

EXHIBIT: Work and figure and the following enemies: *Adalia-bipunctata* L., *Anatis 15-punctata* Ol., *Coccinella novemnotata* Hbst., *C. sanguinea* L., *Harmonia picta* Rand., *Hippodamia convergens* Guen., and *H. 13-punctata* L.

**THE CECROPIA SILK MOTH.***Samia cecropia* Linn.

For general account see Riley, 4th Rpt. Ins. Mo., pp. 103-111, 1872.  
**EXHIBIT:** Larva, cocoon, and adult.

**THE IMBRICATED SNOUT-BEETLE.***Epicerus imbricatus* Say.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 28-29, 1903, and Bul. 19, n. s., pp. 62-67, 1899.  
**EXHIBIT:** Adult.

**SYNETA ALBIDA** Lec.

For brief notice see Riley and Howard, Insect Life, v. IV, p. 396, 1892.

**EXHIBIT:** Adult and work.

**RED-LEGGED FLEA-BEETLE.***Crepidodera rufipes* Linn.

For general article see Insect Life, v. V, pp. 334-342, 1893.

**EXHIBIT:** Adult.

**THE APPLE-LEAF FLEA-WEEVIL.***Orchestes pallicornis* Say.

For short account of life history see Forbes, Trans. Ill. St. Hort. Soc., f. 1901, p. 147, 1902.

**EXHIBIT:** Adult.

**INJURING THE FRUIT.****TEN-SPOTTED XANTHONIA.***Xanthonia decemnotata* Say.

**EXHIBIT:** Adult and work.

**THE INDIAN EUPHORIA.***Euphoria indica* Linn.

For life history and general account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 67-74, 1899.

**EXHIBIT:** Adult and work.

**JUNE BEETLE; FIG EATER.***Allorrhina nitida* Linn.

For general account see Howard, Bul. 10, n. s., Div. Ent., U. S. Dept. Agric., pp. 20-26, 1898.

**EXHIBIT:** Adult.

**CODLING MOTH; APPLE WORM.***Carpocapsa pomonella* Linn.

For full bibliography, life history, and illustrations see Simpson, Bul. 41, Div. Ent., U. S. Dept. Agric., 105 pp., 1903, figs.

**EXHIBIT:** Full life history (larva, pupa, cocoons, and adult) and parasites: *Pimpla annulipes* and *P. conquisitor*. Enemies: *Chauliognathus pennsylvanicus* and *Telephorus bilineatus*.

**THE GREEN FRUIT-WORMS.**

The three following species of *Xylina* are commonly known as green fruit-worms.

For general account see Slingerland, Bul. 123, Cornell Univ. Agr. Expt. Sta., 1896.

*Xylina antennata* Walk.

EXHIBIT: Adult and figure.

*Xylina grotei* Riley.

EXHIBIT: Adult and figure.

*Xylina laticinerea* Grote.

EXHIBIT: Adult and figure.

**ILLUSTRATION SHOWING WORK OF A TORTRICID ON APPLE.**

(The larva mines in and feeds beneath the skin of the fruit.)

**THE PLUM CURCULIO.**

*Conotrachelus nemuphar* Hbst.

For general account and bibliography see Lintner, 7th Rpt. N. Y. St. Ent., pp. 288-296, 1891.

EXHIBIT: Adult and figure.

**THE APPLE CURCULIO.**

*Anthophonus quadrigibbus* Say.

For general account see Gillette, Bul. 11, Iowa Agric. Expt. Sta., pp. 492-494, 1890.

EXHIBIT: Adult and figure.

**THE APPLE-FRUIT MAGGOT.**

*Rhagoletis pomonella* Walsh.

(Formerly *Trypetta*.)

For life history see Harvey, Rpt. Maine Agr. Expt. Sta., p. 190, 1889; Banks, Bul. 34, Div. Ent., U. S. Dept. Agric., p. 45, 1902.

Exhibit: Puparium, adult, and figure.

**THE PERIODICAL CICADA.****THE PERIODICAL CICADA.**

*Tibicen septendecim* Linn.

(Injures by deposition of eggs in the twigs almost all fruit, shade, and forest trees. Formerly *Cicada*.)

For life history and general article see Marlatt, Bul. 14, n. s., Div. Ent., U. S. Dept. Agric. 1898.

EXHIBIT: Full life history with figures. Enemies: *Megastizus speciosus* Dru. (adult and figure), *Oripoda elongata* (figure), *Pediculoides ventricosus* (figure).

## THE WHITE-MARKED TUSSOCK MOTH AND ITS PARASITES.

For general account of this insect and the parasites affecting it see Howard, Tech. series, 5, Div. Ent., U. S. Dept. Agric., 1897. For life history, etc., see Howard, Farmers' Bul. 99, U. S. Dept. Agric., pp. 12-20, 1899.

### THE WHITE-MARKED TUSSOCK-MOTH.

*Hemerocampa leucostigma* S. & A.

(Larvæ feed extensively upon fruit and shade trees and often damage shrubs and vines.)

EXHIBIT: Egg masses, larva, pupa, cocoon, adult, figure, and the following parasites:

#### Primary Hymenopterous Parasites.

*Pimpla conquisitor* Say.

EXHIBIT: Adult, cocoon, and figure.

*Pimpla annulipes* Say.

EXHIBIT: Adult.

*Pimpla inquisitor* Say.

EXHIBIT: Adult, cocoon, and figure.

*Apanteles hyphantriae* Riley.

EXHIBIT: Adult and cocoon.

*Meteorus communis* Cress.

EXHIBIT: Adult and cocoon.

*Limneria valida* Cress.

EXHIBIT: Adult and cocoon.

*Chalcis ovata* Say.

EXHIBIT: Adult.

#### Secondary Hymenopterous Parasites.

*Dibrachys boucheanus* Ratz.

(Parasitic on *Pimpla*, *Meteorus*, etc.)

EXHIBIT: Adult and figure.

*Chalcis debilis* Say.

(Parasite on *Pimpla*, *Meteorus*, etc.)

EXHIBIT: Adult and cocoon.

#### Tertiary Hymenopterous Parasites.

*Asecodes albatarsis* Ashm.

(Parasite on *Dibrachys*.)

EXHIBIT: Adult and figure.

#### Primary Dipterous Parasites.

*Tachina mella* Walk.

EXHIBIT: Adult.

*Frontina aletriae* Riley.

EXHIBIT: Adult.

### INSECTS INJURIOUS TO PEACH.

Saunders, Insects Injurious to Fruit, 2d edit., pp. 191-200, 1900.

#### **THE NATIVE PEACH BARK-BEETLE.**

*Phlaeophthorus liminaris* Harr.

(Formerly called *Phlaeotribus*.)

For general account see Lintner, 9th Rpt. N. Y. St. Ent., pp. 365-368, 1893.

EXHIBIT: Adult and work.

#### **THE FRUIT-TREE BARK-BEETLE.**

*Scolytus rugulosus* Ratz.

For general account see Chittenden, Circ. 29, Div. Ent., U. S. Dept. Agric., 1898.

EXHIBIT: Adult, work, figure, and the parasite *Chiropachys colon*.

#### **THE PEACH-TREE BORER.**

*Sanninoidea exitiosa* Say.

(Formerly *Sannina*.)

For general account see Marlatt, Circ. 17, Div. Ent., U. S. Dept. Agric., 1896.

EXHIBIT: Pupa, cocoon, adult, and figure.

#### **THE PERIODICAL CICADA.**

*Tibicen septendecim* Linn.

(Injures by deposition of eggs in the twigs almost all fruit, shade, and forest trees. See special case containing stages and illustrations.)

For life history and general article see Marlatt, Bul. 14, n. s., Div. Ent., U. S. Dept. Agric., 1898.

EXHIBIT: Pupa, adult, and enemy *Megastizus speciosus*.

#### **THE BLUE-SPANGLED PEACH-MOTH.**

*Haploa lecontei* Boisd.

(Formerly *Callimorpha*.)

For general account see Saunders, Insects Injurious to Fruit, 2d edit., pp. 197-199, 1900.

EXHIBIT: Adult.

#### **THE PEACH-TWIG MOTH.**

*Anarsia lineatella* Zell.

For general article with bibliography see Marlatt, Bul. 10, n. s., Div. Ent., U. S. Dept. Agric., pp. 7-20, 1898.

EXHIBIT: Pupa, adult, work, and figure.

#### **THE INDIAN FRUIT-FLY.**

*Ceratitis capitata* Wied.

For general article see Riley, Rpt. U. S. Dept. Agric., 1890, pp. 255-257.

EXHIBIT: Pupa, adult, and figure.

**THE PEACH SCALE.***Eulecanium persicae* Fabr.

(Food plants: Peach, plum, quince, etc.; formerly a Lecanium. See under "More important scale insects.")

For bibliography, food plants, and distribution see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 191-193, 1903.

EXHIBIT: Infested twig.

**PUTNAM SCALE; CRANBERRY SCALE.***Aspidiotus aencylus* Putn.

(Food plants: Apple, apricot, box-elder, cottonwood, cranberry, elm, hemlock, maple, oak, peach, pear, plum, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 252-253, 1903.

EXHIBIT: Infested twig.

**THE SAN JOSE SCALE.***Aspidiotus perniciosus* Comst.

(Food plants: Almond, apple, apricot, birch, black walnut, black currant, catalpa, chestnut, crab-apple, crab-grass, cherry, grape, hickory, oak, peach, pear, persimmon, plum, poplar, prune, Rocky Mountain cherry, rose, silver maple, willow, and many other plants. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 271-275, 1903; Howard and Marlatt, Bul. 3, n. s., Div. Ent., U. S. Dept. Agric., 1896, 80 pp.

EXHIBIT: Infested twig.

**THE CHERRY LEAF-BEETLE.***Galerucella cavigollis* Lec.

For general article and distribution see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 90-93, 1899.

EXHIBIT: Adult.

**THE CHERRY-FRUIT MAGGOT.***Rhagoletis cingulata* Loew.

For detailed account see Slingerland, Bul. 172, Cornell Univ. Agr. Exp. Sta., 41 pp., 6 figs., 1899; Chittenden, Bul. 44, Div. Ent., U. S. Dept. Agric., p. 70-75, 1904.

EXHIBIT: Adult.

### INSECTS INJURIOUS TO PEAR.

(Many of the insects injuring the apple will be found attacking the pear.)

#### **THE FRUIT-TREE BARK-BEETLE.**

*Scolytus rugulosus* Ratz.

For general account see Chittenden, Circ. 29, Div. Ent., U. S. Dept. Agric., 1898.

EXHIBIT: Adult, work, and figure.

#### **PEAR-BLIGHT BEETLE; SHOT-BORER.**

*Xyleborus pyri* Peck.

(Formerly called *X. dispar*.)

For general account see Hubbard, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., pp. 22-23, 1897.

EXHIBIT: Adult, work, and figure.

#### **THE PEAR BLISTER MITE.**

*Eriophyes pyri* Pagenst.

For detailed account see Slingerland, Bul. 61, Cornell Univ. Agr. Exp. Sta., pp. 317-328, figs., 1893.

EXHIBIT: Work and figure.

#### **THE PEAR PSYLLA.**

*Psylla pyri* Linn.

For general accounts see Slingerland, Bul. 44, Cornell Univ. Agr. Sta., 1892; Marlatt, Circ. 7, Div. Ent., U. S. Dept. Agric., 1895.

EXHIBIT: Adult and figure.

#### **THE PEAR SLUG.**

*Eriocampoides limacina* Ratz.

(Formerly *Eriocampa cerasi*.)

For general account see Marlatt, Circ. 28, Div. Ent., U. S. Dept. Agric., 1897.

EXHIBIT: Adult, work, and figure.

#### **THE SCURFY BARK-LOUSE.**

*Chionaspis furfura* Fitch.

(Food-plants: Apple, cherry, currant, elm, pear, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccoidea of World, Bul. 88, Mass. Agr. Coll., pp. 217-219, 1903; Howard, Yearbook, U. S. Dept. Agric., 1894, pp. 259-261, figs.; Banks, Bul. 34, Div., Ent., U. S. Dept. Agric., p. 14, 1902.

EXHIBIT: Infested twig.

**SINUATE PEAR-BORER.***Agrilus sinuatus* Oliv.

For general accounts see Smith, Rpt. Entom. N. J. Agr. Exp. Sta. f. 1894, pp. 556-561, 1895; Banks, Bul. 34, Div. Ent., U. S. Dept. Agric., pp. 40-41, 1902.

EXHIBIT: Adult and figure.

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**INSECTS INJURIOUS TO PLUM.****THE PLUM CURCULIO.***Conotrachelus nenuphar* Hbst.

For general account and bibliography see Lintner, 7th Rpt. N. Y. St. Ent., pp. 288-296, 1891.

EXHIBIT: Adult, figure, and enemies, *Aspidoglossa subangulata*, *Chauliognathus pennsylvanicus*, *Harpalus caliginosus*, and parasite *Sigalphus curculionis*.

**THE PLUM GOUGER.***Anthonomus prunicida* Walsh.

(Formerly *Coccotenes*.)

For general accounts see Riley and Howard, Insect Life, v. II, pp. 258-259, 1890; Gillette, Bul. 47, Colo. Agr. Exp. Sta., pp. 20-22, 1898.

EXHIBIT: Adult, work, and figure.

**THE HOP PLANT-LOUSE.***Phorodon humuli* Schr.

(Attacks hop and plum.)

For full life history see Riley, Circ. 2, Div. Ent., U. S. Dept. Agric., 1891.

EXHIBIT: Adult and work.

**FORBES' SCALE; CHERRY SCALE.***Aspidiotus forbesi* Johns.

(See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 259-260, 1903.

EXHIBIT: Infested twig.

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**INSECTS LIABLE TO BE DISTRIBUTED ON NURSERY STOCK.**

See Banks, Bul. 34, Div. Ent., U. S. Dept. Agric., 46 pp., 1902.

**THE PEACH SCALE.***Eulecanium persicae* Fab.

(Food plants: Peach, plum, quince, etc.; formerly a *Lecanium*. See under "More important scale insects.")

For bibliography, food plants, and distribution see Fernald, Cat. Coccidæ of World, Bul. 38, Mass. Agr. Coll., pp. 191-193, 1903.

EXHIBIT: Infested twig.

**OYSTER-SHELL BARK-LOUSE.***Lepidosaphes ulmi* Linn.

(Attacks principally apple, currant, *Cornus*, cottonwood, lilac, pear, sassafras, etc.; formerly called *Mytilaspis pomorum* Bouché. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 314-317, 1903.

**EXHIBIT:** Infested twig.

**THE SCURFY BARK-LOUSE.***Chionaspis furfura* Fitch.

(Food plants: Apple, cherry, currant, elm, pear, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 217-219, 1903; Howard, Yearbook, U. S. Dept. Agric., 1894, pp. 259-261, fig.

**EXHIBIT:** Infested twig.

**THE SAN JOSE SCALE.***Aspidiotus perniciosus* Comst.

(Food-plants: Almond, apple, apricot, birch, black walnut, black currant, catalpa, chestnut, crab-apple, crab-grass, cherry, grape, hickory, oak, peach, pear, persimmon, plum, poplar, prune, Rocky Mountain cherry, rose, silver maple, willow, and many other plants. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 271-275, 1903; Howard and Marlatt, Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., 1896. 80 pp.

**EXHIBIT:** Infested twig.

**PUTNAM SCALE; CRANBERRY SCALE.***Aspidiotus aculeatus* Putn.

(Food-plants: Apple, apricot, box-elder, cottonwood, cranberry, elm, hemlock, maple, oak, peach, pear, plum, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 252-253, 1903.

**EXHIBIT:** Infested twig.

**THE CHERRY SCALE; FORBES' SCALE.***Aspidiotus forbesi* Johns.

(Food-plants: Apple, cherry, currant, honey locust, peach, pear, plum, walnut, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 259-260, 1903.

**EXHIBIT:** Infested twig.

**THE WALNUT SCALE.***Aspidiotus juglans-regiae* Comst.

(Food-plants: Ash, cherry, crab-apple, currant, English walnut, locust, peach, pear, prune, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., p. 265, 1903.

**EXHIBIT:** Infested twig.

**THE GREEDY SCALE.***Aspidiotus rapax* Comst.

(Food-plants: Cottonwood, maple, olive, pear, quince, apple, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 276-278, 1903.

**EXHIBIT:** Infested twig.

**THE EUROPEAN FRUIT SCALE.***Aspidiotus ostreæformis* Curt.

(Food-plants: Apple, cherry, maple, oak, peach, pear, etc. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 268-270, 1903.

**EXHIBIT:** Infested twig.

**THE WEST INDIAN PEACH SCALE.***Diaspis pentagona* Targ.

(See under "More important scale insects.")

For bibliography and partial list of food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 234-235, 1903; Riley and Howard, Insect Life, v. VI, pp. 287-295, figs., 1894.

**EXHIBIT:** Infested twig.

**THE ROSE SCALE.***Aulacaspis rosæ* Bouché.

(Food-plants: Blackberry, mango, myrtle, pear, raspberry, rose, Cycas, Ailanthus, etc. See under "More important scale insects.")

For bibliography see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., p. 236, 1903.

**EXHIBIT:** Infested twig.

**THE WOOLLY APPLE APHIS.***Schizoneura lanigera* Hausm.

For general account see Marlatt, Cir. 20, Div. Ent., U. S. Dept. Agric., 1897.

**EXHIBIT:** Infested roots, twigs, and figure.

**THE BLACK PEACH APHIS.***Aphis persicæ-niger* Sm.

Original description E. F. Smith, Ent. Amer., pp. 101-103, 1890.

For general account see Slingerland, Bul. 49, Cornell Univ. Agr. Expt. Sta., pp. 427-433, figs. 1892.

EXHIBIT: Figure.

**APPLE-TREE APHIS.***Aphis mali* Fitch.

For general account separating species occurring on apple see Per-gande, Bul. 44, Div. Ent., U. S. Dept. Agric., pp. 5-23, 1904.

For general account see Smith, Bul. 14, N. J. Agr. Expt. Sta., 1900.

EXHIBIT: Figure.

**THE BUFFALO TREE-HOPPER.***Ceresa bubalus* Say.

For general account see Marlatt, Circ. 23, Div. Ent., U. S. Dept. Agric., 1897.

EXHIBIT: Adult and figure.

**APPLE-TREE TENT-CATERPILLAR.***Malacosoma americana* Fab.(Formerly *Clisiocampa*.)

For life history and bibliography see Felt, 14th Rpt. N. Y. St. Ent., pp. 177-190, 1898.

EXHIBIT: Adult and figure.

**THE FALL WEB-WORM.***Hyphantria cunea* Dru.

For general account see Howard, Farmers' Bul. 99, U. S. Dept. Agric., pp. 20-25, 1899.

EXHIBIT: Adult.

**THE BROWN-TAIL MOTH.***Euproctis chrysorrhœa* Linn.

For life history and general article see Fernald and Kirkland, Spec. Bul. Hatch Expt. Sta., Mass., pp. 15, 1 fig., 3 pls., 1898.

EXHIBIT: Larva and adult.

**THE WHITE-MARKED TUSSOCK-MOTH.***Hemerocampa leucostigma* S. & A.

(Larvæ feed extensively upon fruit and shade trees, and often damage shrubs and vines; see special case containing life history and parasites.)

For general account of this insect and its parasites see Howard, Bul. Tech. ser., 5, Div. Ent., U. S. Dept. Agric., 1897; for life history, Howard, Farmers' Bul. 99, pp. 12-20, 1899.

EXHIBIT: Larva and adult.

**THE LEAF CRUMPLER.***Mineola indiginella* Zell.

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 211-213, 1899.

EXHIBIT: Larva and adult.

**THE GYPSY MOTH.***Porthetria dispar* Linn.

For life history, habits, and general account see Forbush and Fernald, The Gypsy Moth, pp. 495+i-c, 1896.

EXHIBIT: Larva, adult, and figure.

**THE SPRING CANKER-WORM.***Paleacrita vernata* Peck.

For general account see Coquillett, Circ. 9, Div. Ent., U. S. Dept. Agric., pp. 1-3, 1895.

EXHIBIT: Adult and figure.

**THE FALL CANKER-WORM.***Alsophila pometaria* Harr.

(Formerly *Anisopteryx*.)

For general account see Coquillett, Circ. 9, Div. Ent., U. S. Dept. Agric., pp. 3-4, 1895.

EXHIBIT: Eggs, adult, and figure.

**THE PEACH-TREE BORER.***Sanninoidea exitiosa* Say.

(Formerly *Sannina*.)

For general account see Marlatt, Circ. 17, Div. Ent., U. S. Dept. Agric., 1896.

EXHIBIT: Adult and figure.

**THE PEACH-Twig MOTH.***Anarsia lineatella* Zell.

For general article with bibliography see Marlatt, Bul. 10, n. s., Div. Ent., U. S. Dept. Agric., pp. 7-20, 1898.

EXHIBIT: Adult.

**EYE-SPOTTED BUD-MOTH.***Tmetocera ocellana* Schiff.

(Feeds on buds and young leaves.)

For general account see Slingerland, Bul. 50, Cornell Univ. Agric. Expt. Sta., 1893.

EXHIBIT: Adult and figure.

**THE COMMON BAGWORM.***Thyridopteryx ephemeraeformis* Steph.

For general account see Packard, 5th Rpt. U. S. Ent. Comm., pp. 258-262, 1890.

EXHIBIT: Adult, cocoon, and figure.

**THE APPLE-TWIG BORER.***Amphicerus bicaudatus* Say.

For general account see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 11-13, figure, 1898.

EXHIBIT: Adult and figure.

**ROUND-HEADED APPLE-TREE BORER.***Saperda candida* Fab.

For general account see Chittenden, Circ. 32, Div. Ent., U. S. Dept. Agric., pp. 1-8, 1898.

EXHIBIT: Adult and figure.

**FLAT-HEADED APPLE-TREE BORER.***Chrysobothris femorata* Fab.

For general account see Chittenden, Circ. 32, Div. Ent., U. S. Dept. Agric., pp. 9-12, 1898.

EXHIBIT: Adult and figure.

**FRUIT-TREE BARK BEETLE; SHOT-HOLE BORER.***Scolytus rugulosus* Ratz.

For general account see Chittenden, Circ. 29, Div. Ent., U. S. Dept. Agric., 1898.

EXHIBIT: Adult and figure.

**THE PEAR PSYLLA.***Psylla pyri* Linn.

For general accounts see Slingerland, Bul. 44, Cornell Univ. Agr. Expt. Sta., 1892; Marlatt, Circ. 7, Div. Ent., U. S. Dept. Agric., 1895.

EXHIBIT: Figure.

**THE PEAR BLISTER MITE.***Eriophyes pyri* Pagenst.

For detailed account see Slingerland, Bul. 61, Cornell Univ. Agr. Expt. Sta., pp. 317-328, figures, 1893.

EXHIBIT: Work and figure.

**INSECTS INJURIOUS TO GRAPE.**

For the more important grape insects see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., 1898; Saunders, Insects Injurious to Fruit, 2d edition, pp. 227-302, 1900; Bruner, Nebr. State Hortic. Soc. Rept. f. 1895, pp. 69-162, 1896.

**INJURING THE ROOTS.****THE TILE-HORNED PRIONUS.***Prionus imbricornis* Linn.

For general account of *Prionus* species see Lugger, 5th Rpt. St. Ent. Minn., pp. 110-111, 1899.

EXHIBIT: Adult.

**THE GRAPEVINE ROOT-BORER.***Memythrus polistiformis* Harr.(Formerly *Sciapteron.*)

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 55-57, 1899.

EXHIBIT: Figures.

**INJURING LEAVES AND ROOTS.****GRAPE PHYLLOXERA.***Phylloxera vastatrix* Planch.

For general article see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 4-9, figs., 1898.

EXHIBIT: Work and figure.

**INJURING THE STEMS AND BRANCHES.****COTTONY MAPLE SCALE.***Pulvinaria innumerabilis* Rathv.

(Foot-plants: Alder, apple, box-elder, elm, grape, linden, maples, pear, willow, etc. See under "More Important Scale Insects.")

For bibliography and food plants see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., pp. 134-135, 1903; Howard, Bul. 22, n. s., Div. Ent., U. S. Dept. Agric., pp. 8-16, figs. 4, 1900.

EXHIBIT: Infested twig.

**THE GRAPE SCALE.***Aspidiotus uvae* Comst.

(Food-plants: Ampelopsis, grape, hickory.)

For bibliography see Fernald, Cat. Coccidae of World, Bul. 88, Mass. Agr. Coll., p. 280, 1903.

EXHIBIT: Infested twig.

**THE APPLE TWIG-BORER.***Amphicerus bicaudatus* Say.

For general account see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 11-13, figure, 1898.

EXHIBIT: Adult and figure.

**RED-SHOULDERED TWIG-BORER.***Sinoxylon basilare* Say.

For general account see Lugger, 5th Rpt. St. Ent. Minn., pp. 70-72, 1899.

EXHIBIT: Adult and figure.

**THE SNOWY TREE-CRICKET.***Æcanthus niveus* DeG.

For general account see Lugger, 3d Rpt. St. Ent. Minn., pp. 269-271, 1898.

EXHIBIT: Adult and figure.

**ŒCANTHUS LATIPENNIS Riley.**

For brief article see Lugger, 3d Rpt. St. Ent. Minn., p. 273, 1898.  
**EXHIBIT:** Adult.

**GRAPE-VINE ROOT-WORM.**

*Fidia viticida* Walsh.

For life history and bibliography see Felt, Bul. 72, N. Y. St. Museum, 1903, 55 pp., with colored plate.

**EXHIBIT:** Adult and figure.

**GRAPE-VINE FIDIA.**

*Fidia longipes* Mels.

**EXHIBIT:** Adult.

**INJURING THE LEAVES.****ACHEMON SPHINX.**

*Pholus achemon* Dru.

(Formerly *Philampelus*.)

For general account see Lugger, 4th Rpt. State Ent. Minn., pp. 38-40, 1899.

**EXHIBIT:** Larva and adult.

**GRAPE-VINE HOG-CATERPILLAR.**

*Ampelophaga myron* Cram.

For general account see Lugger, 4th Rpt. State Ent. Minn., pp. 42-45, 1899.

**EXHIBIT:** Larva and adult.

**ABBOT'S SPHINX.**

*Sphecodina abbotii* Swaine.

(Formerly *Thyreus*.)

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 32-33, 1899.

**EXHIBIT:** Larva and adult.

**LARGE BEAUTIFUL WOOD NYMPH.**

*Euthisanotia grata* Fabr.

(Formerly *Eudryas*.)

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 69-71, 1899.

**EXHIBIT:** Larva and adult.

**SMALL BEAUTIFUL WOOD NYMPH.**

*Euthisanotia unio* Hübn.

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 71-72, 1899.

**EXHIBIT:** Larva and adult.

**EIGHT-SPOTTED FORESTER.***Alypia octomaculata* Fab.

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 66-67, 1899.

EXHIBIT: Larva and adult.

**SOCIAL GRAPE CATERPILLAR.***Harrisina americana* Guer.

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 72-74, 1899.

EXHIBIT: Adult and figure.

**GRAPE LEAF-FOLDER.***Desmia funeralis* Hübn.

For general account see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 16-17, 1898.

EXHIBIT: Larva, adult, and work.

**GRAPE-VINE PLUME-MOTH.***Oxyptilus periscelidactylus* Fitch.

For general article see Lugger, 4th Rpt. St. Ent. Minn., pp. 221-222, 1899; for bibliography and article see Lintner, 12th Rpt. St. Ent. N. Y., pp. 218-222, 1897.

EXHIBIT: Larva and adult.

**GRAPE-VINE SAWFLY.***Blennocampa pygmaea* Say.

For general articles see Harris, Insects Injurious to Vegetation, pp. 522-525; Beach, Lowe and Stewart, Bul. 170, N. Y. Agric. Expt. Sta., p. 417, 1899.

EXHIBIT: Adult and figure.

**GRAPE-VINE FLEA-BEETLE.***Haltica chalybea* Illig.

For general articles see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 13-14, 1898; Slingerland, Bul. 157, Cornell Univ. Agr. Expt. Sta. N. Y., 1898. For additional food plants see Lugger, 5th Rpt. St. Ent. Minn., pp. 157-159, 1899.

EXHIBIT: Adult and figure.

**THE GRAPE-VINE COLASPIST.***Colaspis brunnea* Fab.

For general article see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 13-14, 1903.

EXHIBIT: Adult.

**THE VARIED ANOMALA.***Anomala varians* Burm.

EXHIBIT: Adult.

**THE GRAPE-VINE LEAF-HOPPER.***Typhlocyba* comes Say.

For general article see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 18-20, 1898, under *Typhlocyba vitifex*. For full life history and general account see Slingerland, Bul. 215, Cornell Univ. Agr. Expt. Sta., 1904.

EXHIBIT: Adult and figure.

**THE WAVED SHARP-SHOOTER.***Oncometopia undata* Fab.

(Formerly *Proconia*.)

For general article see Lugger, 6th Rpt. St. Ent. Minn., pp. 136-137, 1900.

EXHIBIT: Adult.

**INJURING THE FRUIT.****THE GRAPE-SEED WORM.***Isosoma vitis* Saunders.

For general account see Saunders, Insects Injurious to Fruits, 2d ed., pp. 296-297, 1900.

EXHIBIT: Adult.

**THE GRAPE FRUIT-MOTH.***Polychrosis botrana* Schiff.

(Formerly *Eudemis*.)

For general article see Marlatt, Farmers' Bul. 70, U. S. Dept. Agric., pp. 20-22, 1898.

EXHIBIT: Adult and figure.

**THE GRAPE SEED-WEEVIL.***Craponius inaequalis* Say.

For general accounts see Saunders, Insects Injurious to Fruits, 2d ed., pp. 300-301, 1900; Lintner, 9th Rpt. N. Y. St. Ent., pp. 364-365, 1893.

EXHIBIT: Adult and figure.

**INSECTS INJURIOUS TO COTTON.**

For general articles on cotton insects see Howard, The Cotton Plant, Bul. 33, Office Expt. Sta., U. S. Dept. Agric., pp. 317-350, 1896; Farmers' Bul. 47, U. S. Dept. Agric., 1897; Ashmead, Insect Life, v. VII, pp. 25-29, 240-247, 1894, and pp. 320-326, 1895.

**NOTABLY INJURIOUS.****COTTON BOLLWORM; CORN-EAR WORM.***Heliothis obscura* Fab.

(Formerly called *H. armiger*. Larvæ feed on bolls of cotton, ears of corn, tobacco buds, beans, and in tomatoes; also cut off young plants of various garden crops.)

For full life history and general account see Quaintance, Farmers' Bul. 191, U. S. Dept. Agric., 1904.

EXHIBIT: Larva, pupa, adult, work in cotton bolls, and illustrations of different stages, and work on various plants. Parasite exhibited: *Archytas piliventris*; adult, pupa, and figure. Enemies exhibited: *Calosoma lugubre*, *C. Sayi*, *C. scrutator* Fab., *Polistes annularis*, and *P. rubiginosus* Lep.

#### **MEXICAN COTTON BOLL WEEVIL.**

*Anthronomus grandis* Boh.

(Breeds in and destroys bolls.)

For full life history and general account see Hunter and Hinds, Bul. 45, Div. Ent., U. S. Dept. Agric., 1904; also Hunter, Farmers' Bul. 189, 1904.

EXHIBIT: Life history (larvæ, pupæ, adults, injured cotton bolls, with stages present in bolls, and uninjured bolls); illustrations and map showing distribution in United States.

#### **THE COTTON WORM.**

*Alabama argillacea* Hübn.

(Formerly called *Aletia xyloina*. Larvæ feed on the leaves.)

For life history and general account see Howard, The Cotton Plant, Bull. 33, Office Expt. Stations, U. S. Dept. Agric., pp. 320-328, 1896.

EXHIBIT: Larva, pupa, cocoon, adult, and figure.

#### **RED BUG; COTTON-STAINER.**

*Dysdercus suturellus* H.-Schf.

(Punctures boll and seeds, aborting them and staining fibers an indelible red or yellow color.)

EXHIBIT: Nymph, adult, work, and figure.

#### **GLASSY-WINGED SHARPSHOOTER.**

*Homalodisca coagulata* Say.

(Punctures stalk, leaves, and flowers; oviposits in forms and squares; very abundant.)

EXHIBIT: Nymph, adult, and figure.

#### **COTTON APHIS.**

*Aphis gossypii* Glover.

(Punctures leaves and young bolls; late in season causes falling of young bolls.)

See Chittenden, Bull. 43, Div. Ent., U. S. Dept. Agric., pp. 58-61, 1903.

EXHIBIT: Adult, work, and figure.

#### **LEAF-CUTTING ANT.**

*Atta fervens* Say.

(Cleans up plants, cotton worms, and pupæ.)

EXHIBIT: Adult.

**THE AMERICAN LOCUST.***Schistocerca americana* Dru.

For life history and general account see Howard, Insect Life, v. VII, pp. 220-229, 1894; Morgan, Bull. 30, n. s., Div. Ent., U. S. Dept. Agric., p. 27, 1901.

**EXHIBIT:** Nymph and adult.

**THECLA PŒAS** Hubn.

(Larvæ feed on or bore into bolls, and also feed on leaves.)

For brief account see Mally, Bul. 29, Div. Ent., Dept. Agric., pp. 29-30, 1893.

**EXHIBIT:** Adult and work.

**COTTON SNOUT-MOTH.***Platynota sentana* Clem.

(Attacks forms and squares; afterwards feeds on leaves.)

**EXHIBIT:** Adult.

**RASPBERRY SNOUT-MOTH.***Platynota rostrana* Walk.

(Larvæ bore into young bolls.)

**EXHIBIT:** Adult.

**COTTON-BOLL CUTWORM.***Prodenia ornithogalli* Guen.

(Works as the boll-worm; feeds on bolls and squares.)

For life history, general account, and distribution see Chittenden, Bul. 27, n. s., Div. Ent. U. S. Dept. Agric., pp. 64-71, 1901.

**EXHIBIT:** Adult.

**SHAGREENED CUTWORM.***Feltia malefida* Guen.

(Larvæ destroy young plants.)

**EXHIBIT:** Adult.

**OCCASIONALLY INJURIOUS.****THICK-THIGHED WALKING-STICK.***Diapheromera femorata* Linn.

For general account of life history see Howard, The Insect Book, pp. 323-325; fig. 214; pl. 32, fig. 13, 1901.

**EXHIBIT:** Adult.

**LEAF-PALPUS CRICKET.***Phyllopalpus pulchellus* Uhl.

(Feeds on petals, corolla, and pollen.)

**EXHIBIT:** Adult.

**AGITATING CRICKET.***Hapithus agitator* Uhl.

**EXHIBIT:** Adult.

**BANDED CRICKET.***Nemobius fasciatus* DeG.

EXHIBIT: Adult.

**TETTIGIDEA LATERALIS** Say.

EXHIBIT: Adult.

**CONE-HEADED LOCUST.***Conocephalus obtusus* Burm.

(Feeds on leaves, eating large pieces out of side and gnawing holes through the middle.)

EXHIBIT: Adult.

**OBSCURE GRASSHOPPER.***Acridium obscurum* Burm.

(Feeds upon leaves, and sometimes almost defoliates branches.)

For brief notices see Ashmead, Insect Life, v. VII, p. 26, 1894; Morgan, Bul. 30, n. s., Div. Ent., U. S. Dept. Agric., pp. 27-28, 1901.

EXHIBIT: Adult.

**THREE-SPOTTED SOLDIER-BUG.***Euschistus tristigmus* Say.

(Common in cotton; punctures terminal shoots.)

EXHIBIT: Adult.

**CHARIESTERUS ANTENNATOR** Fab.

(Feeds on juices of cotton plants.)

EXHIBIT: Adult.

**SOUTHERN LEAF-FOOTED PLANT-BUG.***Leptoglossus phyllopus* Linn.

(Punctures buds and young bolls.)

For life history and general account see Chittenden, Bul. 19, n. s., Div. Ent. U. S. Dept. Agric., pp. 46-48, 1899.

EXHIBIT: Adult.

**METAPODIUS FEMORATUS** Fab.

(Attacks cotton worms and also punctures young bolls.)

EXHIBIT: Adult.

**CALOCORIS RAPIDUS** Say.

(Punctures buds and young bolls; causes bolls to "flare" and drop.)

EXHIBIT: Adult.

**AULACIZES IRRORATA** Fab.

(Common; feeding on stalk, etc.)

EXHIBIT: Adult.

**SIX-SPOTTED TREE-HOPPER.***Cicadula sexnotata* Fall.

(Feeds on cotton stalks, etc.)

EXHIBIT: Adult.

**SCOLOPS SULCIPES Say.**

(Punctures stems.)

EXHIBIT: Adult.

**ENTILIA SINUATA Fab.**

(Punctures terminal shoots.)

For general account see Howard, Bul. 30, n. s., Div. Ent., U. S. Dept. Agric., pp. 75-78, 1901.

EXHIBIT: Adult.

**THE PHYLLIRA TIGER-MOTH.***Apantesis phyllira* Dru.

(Sometimes locally almost as injurious as the cotton worm.)

EXHIBIT: Adult.

**GREAT LEOPARD MOTH.***Epantheria deflorata* Fab.(Formerly *E. scribonia* Stål.)

EXHIBIT: Adult.

**ABBOT'S BAGWORM.***Oiketicus abbotti* Grote.

EXHIBIT: Adult.

**SALT-MARSH CATERPILLAR.***Estigmene acraea* Dru.(Formerly *Leucarctia*.)

For short account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 43-44, fig. 41, 1903.

EXHIBIT: Adult.

**YELLOW-BEAR CATERPILLAR.***Diacrisia virginica* Fab.

For general account see Lugger, 4th Rept. State Ent. Minn., pp. 79-81, fig. 78, 1899.

EXHIBIT: Adult.

**IO MOTH.***Automeris io* Fab.

For general account see Lugger, 4th Rept. State Ent. Minn., pp. 126-129, fig. 130, and pl. 16, fig. 129, 1899.

EXHIBIT: Adult.

**MARGINED LEAF-CHAFER.***Anomala marginata* Fab.

For bibliography and general account see Lintner, 10th Rpt. State Ent. N. Y., pp. 411-413, 1895.

EXHIBIT: Adult.

**MELANCHOLY SAPCHAFER***Euphoria melancholica* Gory.

(Frequents flowers for nectar and sap; exceptionally eats into bolls.)

EXHIBIT: Adult.

**THE LIVID WIREWORM.***Monocrepidius lividus* DeG.

(Feeds on leaves, blossoms, and squares.)

EXHIBIT: Adult.

**LEMA SEX-PUNCTATA** Ol.

(Adult feeds on leaves.)

For notice of occurrence on cotton see Ashmead, Insect Life, v. VII,  
p. 247, 1894.

EXHIBIT: Adult.

**THE SOUTHERN CORN LEAF-BEETLE.***Myochrous denticollis* Say.For general account see Webster, Bull. 26, n. s., Div. Ent., U. S.  
Dept. Agric., p. 87, 1900.

EXHIBIT: Adult.

**CRYPTOCEPHALUS CALIDUS** Suff.For notice of occurrence on cotton see Ashmead, Insect Life, v. VII,  
p. 247, 1894.

EXHIBIT: Adult.

**TYPOPHORUS VIRIDICYANEUS** Crotch.

(Beetle feeds on young leaves.)

EXHIBIT: Adult.

**NODONOTA TRISTIS** Ol.

(Gnaws bolls, causing them to drop.)

For list of food-plants see Chittenden, Bull. 7, n. s., Div. Ent., U. S.  
Dept. Agric., p. 61, 1897; for general article see Lugger, 5th Rept.  
State Ent. Minn., p. 146, 1899.

EXHIBIT: Adult.

**ELONGATE FLEA-BEETLE.***Systema elongata* Fab.

(On bolls.)

For notice of occurrence on cotton see Ashmead, Insect Life, v. VII,  
p. 247, 1894.

EXHIBIT: Adult.

**THE EGG-PLANT FLEA-BEETLE.***Epitrix fuscata* Cr.For general account see Chittenden, Bull. 19, n. s., Div. Ent., U. S.  
Dept. Agric., pp. 87-89, 1899.

EXHIBIT: Adult.

**BENEFICIAL INSECTS COLLECTED ON COTTON.**For general list of beneficial insects taken on cotton see Ashmead,  
Insect Life, v. VII, 1895.**CHRYSOPOA ATTENUATA** Walk.

EXHIBIT: Adult.

**PERITHEMIS DOMITIA** Dru.

EXHIBIT: Adult.

**CAROLINA REAR HORSE.***Stagmomantis carolina* Burm.

EXHIBIT: Egg mass and adult.

**SINEA DIADEMA** Fab.

(Attacks cotton worms and is destructive to other small caterpillars and aphides.)

EXHIBIT: Adult.

**WHEEL-BUG.***Arilus cristatus* Linn.(Observed to prey on the cotton worm. Formerly called *Prionidus*.)

EXHIBIT: Adult.

**ZELUS BILOBUS** Say.

(Attacks cotton worm.)

EXHIBIT: Nymph and adult.

**APIOMERUS CRASSIPES** Fab.

(Observed to attack cotton worms.)

EXHIBIT: Adult.

**PHYMATA FASCIATA** Gray.

(Attacks cotton worms: also Diptera.)

EXHIBIT: Adult.

**SIX-SPOTTED TIGER BEETLE.***Cicindela sex-guttata* Fab.

EXHIBIT: Adult.

**CAROLINA TIGER BEETLE.***Tetracha carolina* Linn.

(Feeds occasionally upon cotton worms.)

EXHIBIT: Adult.

**SUBTERRANEAN GROUND BEETLE.***Scarites subterraneus* Fab.

EXHIBIT: Adult.

**PTEROSTICHUS PERMUNDUS** Say.

EXHIBIT: Adult.

**HELLUOMORPHA TEXANA** Lec.

EXHIBIT: Adult.

**GALERITA ATRIPES** Lec.

EXHIBIT: Adult.

**CALLIDA DECORA** Fab.

EXHIBIT: Adult.

**COCCINELLA SANGUINEA** Linn.

(Attacks cotton aphis.)

EXHIBIT: Adult.

**COCCINELLA OCULATA** Fab.

EXHIBIT: Adult.

**TWICE-STABBED LADYBIRD.***Chilocorus bivulnerus* Muls.

(Attacks cotton Aleyrodes.)

EXHIBIT: Adult.

**COLLOPS QUADRIMACULATUS** Fab.

(Feeds on pollen, and probably on small insects.)

EXHIBIT: Adult.

**ROBBER FLY.***Erax lateralis* Macq.

(Observed to catch bollworm moths on the wing.)

EXHIBIT: Adult.

**ASILUS SERICEUS** Say.

(Observed to catch moths on the wing.)

EXHIBIT: Adult.

**MESOGRAPTA POLITA** Say.

(Feeds on aphids.)

EXHIBIT: Adult.

**COTTON-WORM TACHINA FLY.***Frontina aletiae* Riley.

EXHIBIT: Adult.

**HOLCOCEPHALA ABDOMINALIS** Say.

EXHIBIT: Adult.

**DIOGMITES DISCOLOR** Loew.

EXHIBIT: Adult.

**LAPHRIA THORACICA** Fab.

EXHIBIT: Adult.

**ATOMOSIA PUELLA** Wied.

EXHIBIT: Adult.

**ROBBER FLY.***Proctacanthus milberti* Macq.

(Observed to attack cotton worm.)

EXHIBIT: Adult.

**ISODONTIA PHILADELPHICA** Lep.

(Preys upon crickets.)

EXHIBIT: Adult.

**AMMOPHILA PICTIPENNIS** Walsh.

(Preys on caterpillars.)

EXHIBIT: Adult.

**POLISTES RUBIGINOSUS** Lep.

EXHIBIT: Adult.

**COMPSOMERUS QUADRINOTATA** Fab.

EXHIBIT: Adult.

**LYSIPHLEBUS TESTACEIPES** Cress.

(Cotton aphis parasite: "Fairly cleaned cotton of aphids.")

EXHIBIT: Adult.

**OPHION BILINEATUS** Say.

EXHIBIT: Adult.

**SPILOCRYPTUS NUNCIUS** Say.

(Bred from cotton worm.)

EXHIBIT: Adult.

**SYNTOMOSPHYRUM ESURUS** Riley.

(Bred from cotton worm.)

EXHIBIT: Adult.

**EUPLECTRUS COMSTOCKII** How.

(Bred from cotton worm and boll worm.)

EXHIBIT: Adult.

**INSECTS INJURIOUS TO INDIAN CORN.**

Treating of injuries to seed in ground and roots see Forbes, 18th Rept. St. Ent. Ill., pp. 7-171, Pls. I-XV, 1894.

For general articles see Webster, 35th Ann. Rept. Ind. St. Bd. Agric. f. 1885, pp. 180-215, 1886; Bruner, Rpt. Nebr. St. Bd. Agr. f. 1891, pp. 240-309, 1892.

**INJURING THE PLANTED SEED.****THE SEED-CORN MAGGOT.***Pegomyia fusciceps* Zett.(Formerly *Pegomyia zea* Riley.)

For general articles see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 84-92, 1902; Forbes 18th Rpt. St. Ent. Ill., pp. 16-19, 1894.

EXHIBIT: Pupa, adult, and work.

**SEED-CORN AGONODERUS.***Agonoderus pallipes* Fab.

For general account see Forbes, 18th Rept. St. Ent. Ill., pp. 12-14, 1894.

EXHIBIT: Adult and work.

**LITTLE BLACK ANT.***Prenolepis imparis* Say.

(Adults eat sprouting corn; also called *P. nitens* Mayr., which is a European variety of the species.)

EXHIBIT: Adult.

**THE SMALL YELLOW ANT.***Solenopsis debilis* Mayr.

For general article see Forbes, 18th Rept. St. Ent. Ill., pp. 9-11, 66, 1894.

EXHIBIT: Adult and figure.

**THE VAGABOND CRAMBUS.***Crambus vulgivagellus* Clem.

For general account see Lintner, 1st Rept. St. Ent. N. Y., pp. 127-157, 1882; Felt. Bul. 64, Cornell Univ. Agr. Expt. Sta., pp. 69-71, 1894.

EXHIBIT: Adult and figure.

**THE CORN-ROOT WEBWORM.***Crambus zcellus* Fern.

(Larvæ feed on roots; when full grown form a webbed cocoon near base of stalk.)

For general account see Forbes, 14th Rpt. St. Ent. Ill., pp. 12-17, 1885.

EXHIBIT: Pupa, cocoon, and adult.

**INJURING THE ROOTS AND SEEDS.****THE CORN-ROOT APHIS.***Aphis maidis-radicis* Forbes.

For detailed account see Forbes, 18th Rpt. St. Ent. Ill., pp. 58-85, 1894.

EXHIBIT: Adult and figure.

**WHITE GRUB; MAY BEETLE.***Lachnostenra fusca* Fröh.

For account of white grubs injuring corn see Forbes, 18th Rept. St. Ent. Ill., pp. 109-145, 1894.

EXHIBIT: Adult.

**LACHNOSTERNA GIBBOSA** Burm.

For general account of white grubs see Forbes, 18th Rept. St. Ent. Ill., pp. 109-145, 1894.

EXHIBIT: Adult.

**THE WHEAT WIREWORM.***Agriotes mancus* Say.

For general account see Chittenden, Bul. 27, n. s., Div. Ent., U. S. Dept. Agric., pp. 77-78, 1901.

EXHIBIT: Adult and figure.

**THE CORN WIREWORM.***Melanotus cribulosus* Lec.

For injuries by wire-worms see Forbes, 18th Rept. St. Ent. Ill., pp. 27-51, 1894.

EXHIBIT: Adult and figure.

**THE COMMON WIREWORM.***Melanotus communis* Gyll.

For injuries by wire-worms see Forbes, 18th Rept. St. Ent. Ill., pp. 27-51, 1894.

EXHIBIT: Adult.

**TWELVE-SPOTTED CUCUMBER-BEETLE.***Diabrotica duodecimpunctata* Oliv.

For general articles see Forbes, 18th Rept. St. Ent. Ill., pp. 146-154, 1894; Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 12-13, 1903; Quaintance, Bul. 26, n. s., Div. Ent., U. S. Dept. Agric., pp. 35-40, 1900.

EXHIBIT: Adult and figure. (See also, under "Injuring the Ears.")

**THE NORTHERN CORN ROOT-WORM.***Diabrotica longicornis* Say.

For general account see Forbes, 18th Rept. St. Ent. Ill., pp. 154-165, 1894.

EXHIBIT: Adult and figure.

**INJURING THE YOUNG PLANT.****CORN BILL-BUGS.**

For general articles on corn bill-bugs see Forbes, 16th Rept. St. Ent. Ill., pp. 58-74, 1890; Bul. 79, Ill. Agr. Expt. Sta., 27 pp. 1902.

**THE CLAY-COLORED BILL-BUG.***Sphenophorus aequalis* Linn.

(Treated as *S. ochreus* Lec, by Forbes, l. c.)

EXHIBIT: Adult and figure.

**NORTHERN CORN BILL-BUG.***Sphenophorus zea* Walsh.

(Generally called by authors *S. sculptilis*.)

EXHIBIT: Adult and work.

**THE TENACIOUS BILL-BUG.***Sphenophorus pertinax* Oliv.

EXHIBIT: Adult.

**THE BLUE-GRASS BILL-BUG.***Sphenophorus parrulus* Gyll.

EXHIBIT: Adult.

**THE CALLOUSED BILL-BUG.***Sphenophorus callosus* Oliv.

EXHIBIT: Adult.

**THE FALL ARMY WORM.***Laphygrma frugiperda* S. & A.

(Larvæ feed on leaves, burrow in young plants, and later leaves and forming ears are damaged.)

For full life history and bibliography see Chittenden, Bul. 29, n. s., Div. Ent. U. S. Dept. Agric. pp. 13-45, 1901.

EXHIBIT: Larva and adult.

**THE ARGE TIGER MOTH.***Apantesis arge* Dru.

For brief account see Bruner, Rept. Nebr. St. Bd. Agr. 1891, p. 244, 1892.

EXHIBIT: Larva, pupa, and adult.

**YELLOW-BEAR CATERPILLAR.***Diacrisia virginica* Fab.

For general account see Lugger, 4th Rept. State Entom. Minn., pp. 79-81, fig. 78, 1899.

EXHIBIT: Larva, cocoon, and adult.

**SALT-MARSH CATERPILLAR.***Estigmene acraea* Dru.

For short account see Chittenden, Bul. 43, Div. Ent. U. S. Dept. Agric., pp. 43-44, fig. 41, 1903.

EXHIBIT: Larva and adult.

**THE SADDLE-BACK CATERPILLAR.***Sibine stimulea* Clem.

For general account see Lugger, 4th Rept. State Ent. Minn., pp. 98-99, 1899.

EXHIBIT: Larva, pupa, cocoon, and adult.

**THE DARK-SIDED CUTWORM.***Euxoa messoria* Harr.

For general account see Riley, Rept. U. S. Dept. Agric., 1884, pp. 290-291, 1885.

EXHIBIT: Larva, adult, and figure.

**THE BRONZED CUTWORM.***Nephelodes minians* Guen.

For life history and partial bibliography see Lintner, 1st Rept. St. Ent. N. Y., pp. 99-110, 1882; Riley, Rept. U. S. Dept. Agric., 1890, pp. 244-246, 1891.

EXHIBIT: Adult.

**THE W-MARKED CUTWORM.***Noctua clandestina* Harr.

For general account see Slingerland, Bul. 104, Cornell Univ. Agr. Expt. Sta., pp. 571-574, 1895.

EXHIBIT: Larva and adult.

**THE SPOTTED CUTWORM.***Noctua c-nigrum* Linn.

For general account and life history see Chittenden, Bul. 27, n. s., Div. Ent. U. S. Dept. Agric., pp. 54-58, 1901.

EXHIBIT: Larva, pupa, adult, and figure.

**THE VARIEGATED CUTWORM.***Peridroma saucia* Hübn.

For general bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent. U. S. Dept. Agric., pp. 46-64, 1901.

EXHIBIT: Adult and figure.

**THE GLASSY CUTWORM.***Hadena devastatrix* Brace.

For general account see Riley, Rept. U. S. Dept. Agric. 1884, pp. 296-297, 1885.

EXHIBIT: Adult.

**THE BLACK CUTWORM.***Agrotis ypsilon* Rott.

For general account see Riley, Rept. U. S. Dept. Agric. 1884, pp. 294-295, 1885.

EXHIBIT: Larva, adult and figure.

**WESTERN STRIPED CUTWORM.***Feltia herilis* Grote.

For short account see Riley, 1st Rpt. St. Ent. Mo., pp. 81-82, 1869; Forbes: 16th Rpt. St. Ent. Ill., p. 89, 1894.

EXHIBIT: Larva and adult.

**THE DINGY CUTWORM.***Feltia subgothica* Haw.

For general articles see Chittenden, Yearbook, U. S. Dept. Agric., 1898, p. 257. Slingerland, Bul. 104, Cornell Univ. Agr. Expt. Sta., pp. 574-579, 1895.

EXHIBIT: Larva, adult and figure.

**INJURING THE STALK.****THE SPINDLE WORM.***Achatodes zea* Harr.

For brief accounts see Harris, Ins. Inj. to Veg., Flint Ed., pp. 438-439, 1862; Webster, 35th Ann. Rept. Ind. St. Bd. Agric., f. 1885, p. 193, 1886.

EXHIBIT: Adult and work.

**SMALLER CORN STALK-BORER.***Elasmopalpus lignosellus* Zell.

For life-history and general account see Chittenden, Bul. 23, n. s., Div. Ent. U. S. Dept. Agric. pp. 17-22, 1900.

EXHIBIT: Adult work and cocoon.

**THE STALK BORER.***Papaipema nitela* Guen.

(Formerly *Gortyna* and *Hydræcia*.)

For general account see Bird, Can. Ent., v. XXX, pp. 127-128, 1898; Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 11-12, fig. 2, 1902.

EXHIBIT: Adult.

**CORN STALK-BORER; SUGAR-CANE BORER.***Diatraea saccharalis* Fab.

For full life-history and general account see Howard, Insect life, v. IV, pp. 95-103, 1891.

EXHIBIT: Eggs, larva, pupa, adult, and work.

**INJURING THE LEAVES.****THE LESSER LOCUST.***Melanoplus atlantis* Riley.

For bibliography and general accounts see Scudder, Proc. U. S. N. M., v. XX, pp. 178-183, pl. 12, fig. 7, 1897; Riley, Bul. 25, Div. Ent. U. S. Dept. Agric. pp. 26-27, 1891.

EXHIBIT: Adult.

**THE TWO-STRIPED LOCUST.***Melanoplus bivittatus* Say.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 363-368, pp. 24, fig. 5, 1897; Riley, l. c., pp. 31-32.

EXHIBIT: Adult.

**THE DIFFERENTIAL LOCUST.***Melanoplus differentialis* Thos.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 349-354, pl. 23, figs. 3 and 4, 1897; also Morgan, Bul. 30, n. s., Div. Ent., U. S. Dept. Agric., pp. 7-26, 1901.

EXHIBIT: Adult.

**RED-LEGGED LOCUST.***Melanoplus femur-rubrum* DeG.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 278-285, pl. 1, fig. h., pl. 19, figs. 1-4, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 27-28, 1891.

EXHIBIT: Adult.

**THE ROCKY-MOUNTAIN LOCUST.***Melanoplus spretus* Thos.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 184-190, pl. 12, fig. 8, 1897; also Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 7-26, 1891.

EXHIBIT: Adult.

**THE AMERICAN LOCUST.***Schistocerca americana* Dru.

For life history and general account, Howard, Insect Life, v. VII, pp. 220-229, 1894; also Morgan, Bul. 30, n. s., Div. Ent., U. S. Dept. Agric., p. 27, 1901.

EXHIBIT: Adult.

**THE CORN APHIS.***Aphis maidis* Fitch.

For general account see Forbes, 13th Rept. St. Ent. Ill., pp. 43-50, 1884.

EXHIBIT: Figure.

**THE BARRED-WINGED ONION MAGGOT.***Chaetopsis xenea* Wied.

For general accounts see Howard, Insect Life, v. VII, pp. 352-354, 1895; Pettit, Bul. 200, Mich. Agr. Exp. Sta., pp. 206-208, 1902.

EXHIBIT: Puparium and adult.

**THE CHINCH BUG.***Blissus leucopterus* Say.

(Injures cane, corn, oats, rye, wheat, etc.)

For bibliography, 1786-1888, see Forbes, App. to 16th Rept. St. Ent. Ill., pp. 1-102, 1894.

For general articles see Forbes, 16th Rept. St. Ent. Ill., pp. 1-57, 1894; Webster, Bul. 15, n. s., Div. Ent., U. S. Dept. Agric., 82 pp. 1898.

EXHIBIT: Nymph, adult, and figure.

**THE FODDER WORM.***Epizeuxis emula* Hübn.

(Lives especially on leaves of stored fodder.)

For general account see Packard, 5th Rept. U. S. Ent., Comm., pp. 843-844, 1890.

EXHIBIT: Larva, pupa, cocoon, adult, and work.

**THE ARMY WORM.***Heliothis unipuncta* Harv.

(Formerly *Leucania*.)

For bibliography and life history see Lintner, 12th Rept. St. Ent. N. Y., pp. 190-214, 1896.

EXHIBIT: Larva and adult.

**THE CORN-FEEDING SYRPHUS-FLY.***Mesograpta polita* Say.

For general account see Riley and Howard, Insect Life, v. I, pp. 5-8, 1888.

EXHIBIT: Puparia and adult.

**THE STRIPED BLISTER BEETLE.***Epicauta vittata* Fab.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 22-23, 1903.

EXHIBIT: Pupa, adult, and figure.

**BLACK BLISTER BEETLE.***Epicauta pennsylvanica* DeG.

(Feed on pollen and flower leaves.)

For brief account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 25, 1903.

EXHIBIT: Adult.

**THE MARGINED BLISTER BEETLE.***Epicauta cinerea* Forst.

For brief account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 24, 1903.

EXHIBIT: Adult.

**INJURING THE POLLEN, SILK, AND EARS.****BOLLWORM; CORN-EAR WORM.***Heliothis obscura* Fab.

(Formerly *H. armiger* Hüb.; see special ease.)

For life history and general account see Quaintance, Farmer's Bul. 191, U. S. Dept. Agric., 1904.

EXHIBIT: Adult.

**THE BROWN FRUIT-CHAFER.***Euphoria inda* Linn.

For life history and general account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 67-74, 1899.

EXHIBIT: Adult and work.

**THE ROSE-CHAFER.***Macrodactylus subspinosus* Fabr.

For general article and life history see Smith, Bul. 82, N. J. Agric. Expt. Sta., 1891.

EXHIBIT: Adult and figure.

**THE RUSTY-BROWN TORTRIX.***Platynota flavedana* Clem.

(Larvæ feed in ears of green corn.)

For general account see Lugger, 4th Rept. St. Ent. Minn., pp. 231-239, 1899.

EXHIBIT: Pupa and adult.

## INSECTS INJURING SUGAR CANE.

### THE SUGAR-CANE PIN-BORER.

*Xyleborus sacchari* Hopk.

For notes, under name of *X. pubescens* Zim., see Riley and Howard, Insect Life, v. IV, p. 402, and v. V, p. 51, 1892.

EXHIBIT: Adult, work, and figure.

### HAWAIIAN SUGAR-CANE BORER.

*Sphenophorus obscurus* Boisd.

For life history and general account see Riley and Howard, Insect Life, v. I, pp. 185-189, 1888.

EXHIBIT: Adult and figure.

### THE SUGAR-CANE BEETLE.

*Ligyrus rugiceps* Lec.

For general account see Howard, Insect Life, v. I, pp. 11-13, 1888.

EXHIBIT: Adult and work.

### CORN STALK-BORER; SUGAR-CANE BORER.

*Diatraea saccharalis* Fab.

For full life history and general account see Howard, Insect Life, v. VI, pp. 95-103, 1891.

EXHIBIT: Larva, pupa, adult, and work.

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## INSECTS INJURIOUS TO RICE.

### THE RICE WEEVIL.

*Calandra oryzae* Linn.

For general account see Chittenden, Farmers' Bul. 45, rev. ed., U. S. Dept. Agric., pp. 5-6, 1897.

EXHIBIT: Adult and figure.

### THE RICE GRUB.

*Chalepus trachypygus* Burm.

For general article see Riley, Rpt. U. S. Dept. Agric., 1881 pp. 128-129, 1882.

EXHIBIT: Adult and figure.

### THE RICE STALK-BORER.

*Chilo plejadellus* Zinck.

For general article under *Chilo oryzællus* see Riley, Rpt. U. S. Dept. Agric. f. 1881, pp. 133-135, 1882.

EXHIBIT: Larva, adult, work, figure and the parasite *Phora aletiae* Comst.

**THE RICE WATER-WEEVIL.***Lissorhoptrus simplex* Say.

For general article see Riley, Rpt. U. S. Dept. Agric. f. 1881, pp. 130-133, 1882.

EXHIBIT: Adult and figure.

**THE FALL ARMY WORM.***Laphygrma frugiperda* S. & A.

For full life history and bibliography see Chittenden, Bul. 29, n. s., Div. Ent., U. S. Dept. Agric., pp. 13-45, 1901.

EXHIBIT: Larva, pupa, adult, and figure.

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**INSECTS INJURIOUS TO GRASSES.****APANTESIS NAIS** Dru.

(Formerly *Arctia*.)

For account see Beutenmüller, "Cat. Lep. N. Y.," Ann. Acad. N. Y., p. 206, 1890.

EXHIBIT: Adult.

**GRANULATED CUTWORM.***Feltia annexa* Fr.

For general account see Riley, Rept. U. S. Dept. Agric., 1884, pp. 291-292, 1885. For description and stages see French, Can. Ent., v. XIV, pp. 207-210, 1882.

EXHIBIT: Adult and figure.

**HOMOPTERA EDUSA** Dru.

EXHIBIT: Larva, pupa, and adult.

**NORTHERN GRASS WORM.***Drasteria erichthea* Cram.

For general account see Slingerland, Insect Life, v. V, pp. 87-88, 1892.

EXHIBIT: Larva, pupa, adult, and work.

**THE ARMY WORM.***Heliothis unipuncta* Harv.

(Formerly *Leucania*.)

For bibliography and life history see Lintner, 12th Rept. St. Ent. N. Y., pp. 190-214, 1896.

EXHIBIT: Larva, pupa, adult, and figure.

**THE SALT-MARSH CATERPILLAR.***Estigmene acraea* Dru.

(Formerly called *Leucarctia*.)

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 43-44, 1903.

EXHIBIT: Larva and adult.

**FALL ARMY WORM.***Laphygma frugiperda* S. & A.

For full bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent., U. S. Dept. Agric., pp. 40-45, 1901.

**EXHIBIT:** Larva, pupa, adult, and figure.

**THE ISABELLA TIGER MOTH.***Isia isabella* S. & A.

(Formerly *Pyrrharctia*.)

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 44-45, 1903.

**EXHIBIT:** Larva, cocoon, adult and figure.

**THE VAGABOND CRAMBUS.***Crambus vulgivagellus* Clem.

For general accounts see Lintner, 1st Rept. St. Ent. N. Y., pp. 127-151, 1882; Felt, Bul. 64, Cornell Univ. Agric. Expt. Sta., pp. 69-71, 1894.

**EXHIBIT:** Eggs, adult, work, figure, and parasite *Lampronotus frigida* Cr.

**THE SPOTTED CUTWORM.***Noctua c-nigrum* Linn.

For general account and life history see Chittenden, Bul. 27, n. s., Div. Ent., U. S. Dept. Agric., pp. 54-58, 1901.

**EXHIBIT:** Pupa and adult.

**WHITE GRUB; MAY BEETLE.***Lachnostenra fusca* Fröh.

For account of white grubs see Forbes, 18th Rept. St. Ent. Ill., pp. 109-145, 1894.

**EXHIBIT:** Adult.

**WHITE GRUB; JUNE BEETLE.***Lachnostenra arcuata* Smith.

For general account see Chittenden, Bul. 27, n. s., Div. Ent., U. S. Dept. Agric., pp. 74-76, 1901.

**EXHIBIT:** Adult and figure.

**THE DISTENDED MAY BEETLE.***Lachnostenra farcta* Lec.

For short notices see Comstock, Rept. U. S. Dept. Agric. 1879, pp. 247-248, Pl. V, fig. 5, 1880, and Howard, Bul. 22, n. s., Div. Ent., U. S. Dept. Agric., p. 107, 1900.

**EXHIBIT:** Adult.

**THE BLUE-GRASS BILL-BUG.***Sphenophorus parvulus* Gyll.

For article see Forbes, 16th Rept. St. Ent. Ill., pp. 63, 65, 1894.

**EXHIBIT:** Adult.

**THE LESSER LOCUST.***Melanoplus atlantis* Riley.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 178-183, pl. 12, fig. 7, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 26-27, 1891.

EXHIBIT: Adult.

**THE CAROLINA LOCUST.***Dissosteira carolina* Linn.

For short account see Forbes and Hart, Bul. 60, Ill. Agric. Expt. Sta., pp. 479-480, 1900.

EXHIBIT: Nymph and adult.

**THE TIMOTHY PLANT-BUG.***Oncognathus binotatus* Fabr.

For general account see Howard, Insect Life, v. V, pp. 90-92, 1892.

EXHIBIT: Adult.

**THE GREATER WHEAT-STEM MAGGOT.***Meromyza americana* Fitch.

For general article see Webster, Bul. 42, Div. Ent., U. S. Dept. Agric., pp. 43-51, 1903.

EXHIBIT: Adult and figure.

**LEATHER JACKET; MEADOW WORM.***Tipula bicornis* Loew.

For general account see Forbes, 16th Rept. St. Ent. Ill., pp. 78-83, 1890.

EXHIBIT: Adult and figure.

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**INSECTS INJURIOUS TO ALFALFA.****THE VARIEGATED CUTWORM.***Peridroma saucia* Hübñ.

For general bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent. U. S. Dept. Agric., pp. 46-64, 1901.

EXHIBIT: Larva and adult.

**THE FALL ARMY WORM.***Laphygma frugiperda* S. & A.

For full bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent. U. S. Dept. Agric., pp. 40-45, 1901.

EXHIBIT: Larva and adult.

**THE ALFALFA WEBWORM.***Loxostege commixtalis* Walk.

(Formerly known as *L. cereralis* Zell.)

For account of *Loxostege* sp. attacking alfalfa see Insect Life, v. VI, pp. 36, 1893.

EXHIBIT: Adult.

**THE TWO-STRIPED LOCUST.***Melanoplus bivittatus* Say.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 363-368, pl. 24, fig. 5, 1897.

EXHIBIT: Adult and figure.

**THE DIFFERENTIAL LOCUST.***Melanoplus differentialis* Thos.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 349-354, pl. 23, figs. 3 and 4, 1897; also Morgan, Bul. 30, n. s., Div. Ent. U. S. Dept. Agric., pp. 7-26, 1901.

EXHIBIT: Adult and figure.

**THE ROCKY-MOUNTAIN LOCUST.***Melanoplus spretus* Thos.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 184-190, pl. 12, fig. 8, 1897.

EXHIBIT: Adult.

**THE AMERICAN LOCUST.***Schistocerca americana* Dru.

For life history and general account see Howard, Insect Life, v. VII, pp. 220-229, 1897; also Morgan, Bul. 30, n. s., Div. Ent., U. S. Dept. Agric., p. 27, 1901.

EXHIBIT: Adult.

**THE CLOVER-SEED CHALCIS-FLY.***Bruchophagus funebris* How.

For general account see Hopkins, Bul. 6, n. s., Div. Ent. U. S. Dept. Agric., p. 73, 1896, and Bul. 17, n. s., p. 45, 1898; Titus, Bul. 44, pp. 77-80, 1904.

EXHIBIT: Adult and work.

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**INSECTS INJURIOUS TO SMALL GRAINS.**

For general articles see Howard, Tech. Ser. 2, Div. Ent. U. S. Dept. Agric., 24 pp., 1896; Marlatt, Farmers' Bul. 132, U. S. Dept. Agric., 38 pp., 1901; Webster, Bul. 42, Div. Ent., U. S. Dept. Agric., 62 pp., 1903.

**THE LESSER LOCUST.***Melanoplus atlantis* Riley.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 178-183, pl. 12, fig. 7, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 26-27, 1891.

EXHIBIT: Nymph and adult.

**THE RED-LEGGED LOCUST..***Melanoplus femur-rubrum* DeG.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 278-285, pl. 1, fig. h; Pl. IX, figs. 1-4, 1897; Riley, Bul. 25, Div. Ent. U. S. Dept. Agric., pp. 27-28, 1891.

EXHIBIT: Nymph and adult.

**THE ROCKY MOUNTAIN LOCUST.***Melanoplus spretus* Thos.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 184-190, pl. 12, fig. 8, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 9-26, 1891.

EXHIBIT: Nymph, adult, and figure.

**THE WESTERN CRICKET.***Anabrus purpurascens* Uhl.

For detailed account see Packard, 2d Rept. U. S. Ent. Comm., pp. 163-178, 1879.

EXHIBIT: Adult.

**THE CLEAR-WINGED LOCUST.***Cannula atrox* Scudd.

For account of an allied species (*C. pellucida*) see Simpson, Circ. 53, Div. Ent., U. S. Dept. Agric., 1903.

EXHIBIT: Adult.

**THE ARMY WORM.***Heliothis unipuncta* Harv.

(Formerly *Leucania*.)

For bibliography and life history see Lintner, 12th Rept. St. Ent. N. Y., pp. 190-214, 1896.

EXHIBIT: Larva, pupa, adult, and figure.

**FALL ARMY WORM.***Laphygma frugiperda* S. & A.

For full bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent., U. S. Dept. Agric., pp. 40-45, 1901.

EXHIBIT: Larva, pupa, and adult.

**STALK BORER.***Papaipema nitela* Guen.

(Bores in stems of various plants.)

For general account see Bird, Can. Ent., v. XXX, pp. 127-128, 1898.

EXHIBIT: Larva, pupa, adult, and work.

**WHEAT-HEAD ARMY-WORM.***Heliothis albilinea* Hübn.

For general account see Riley, 9th Rept. St. Ent. Mo., pp. 50-57, 18.

EXHIBIT: Pupa, adult, figure, and parasites: *Anomalon apicale* Cress., *Tachina anonyma* Riley.

**NUTTALL'S BLISTER BEETLE.***Cantharis nuttalli* Say.

For short article see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 27, 1903.

**EXHIBIT:** Adult.

**THE CLAY-COLORED BILL-BUG.***Sphenophorus aequalis* Lec.

(Treated as *S. ochreus* Lec. by authors.)

For articles on bill-bugs see Forbes, 16th Rept. St. Ent. Ill., pp. 58-74, 1890; Webster, Insect Life, v. II, pp. 132-134, 1889.

**EXHIBIT:** Adult.

**THE GERMAN GRAIN-LOUSE.***Macrosiphum cerealis* Kalt.

(Attacks barley, chess, meadow, orchard, and velvet grass, oats, rye, and wheat, feeding on ears, racemes, and other parts of plant.)

For general account see Pergande, Bul. 44, Div. Ent., U. S. Dept. Agric., pp. 18-21, 1904.

**EXHIBIT:** Figure.

**THE ENGLISH GRAIN-LOUSE.***Macrosiphum granaria* Buck.

(Attacks green foxtail, meadow, and orchard grass, oats, red-clover, red top, rye, wheat, and wild rye.)

For general account see Pergande, Bul. 44, Div. Ent., U. S. Dept. Agric., pp. 13-18, 1904.

**EXHIBIT:** Figure and work; parasite, *Lysiphlebus testaceipes* Cress. (figure); and enemies, *Anatis 15-punctata* Ol.; *Coccinella sanguinea* Linn.; *Hippodamia parenthesis* Say; *Podabrus tomentosus* Say; *Sphaerophoria cylindrica* Say; *Syrphus americanus* Wied.

**THE EUROPEAN GRAIN-LOUSE.***Siphocoryne avenae* Fabr.

(Attacks apple, burdock, celery, choke-cherry, dogwood, grasses, oats, rye, wheat, and other plants.)

For general account see Pergande, Bul. 44, Div. Ent., U. S. Dept. Agric., pp. 5-13, 1904.

**EXHIBIT:** Figure.

**THE CHINCH BUG.***Blissus leucopterus* Say.

(Injures cane, corn, oats rye, wheat, etc.)

For bibliography 1785-1888 see Forbes, App. to 16th Rept. St. Ent. Ill., pp. 1-102, 1894. For general articles see Forbes, 16th Rept. St. Ent. Ill., pp. 1-57, 1894; Webster, Bul. 15, n. s., Div. U. S. Dept. Agric., 82 pp., 1898.

**EXHIBIT:** Eggs, nymph, adult, and figure.

**THE GRAIN LEAF-HOPPER.**

*Diedrocephalus flaviceps* Riley.

For account of *D. mollipes* see Osborn & Ball, Bul. 34, Iowa Agric. Expt. Sta., p. 614, 1897.

EXHIBIT: Adult.

**THE DESTRUCTIVE LEAF-HOPPER.**

*Cicadula exitiosa* Uhl.

For general account see Comstock, Rept. U. S. Comm. Agric., 1879, pp. 191-193, 1880.

EXHIBIT: Adult.

**THE WHEAT FALSE WORM.**

*Dolerus arvensis* Say.

For general account see Riley and Marlatt, Insect Life, v. IV, pp. 171-172, 1891.

EXHIBIT: Adult and figure.

**THE GRASS SAWFLY.**

*Pachynematus extensicornis* Nort.

(Formerly *Nematus marylandicus*.)

For article under *N. marylandicus* see Riley and Marlatt, Insect Life, v. IV, pp. 174-177, 1891.

EXHIBIT: Adult and figure.

**THE WESTERN GRAIN SAWFLY.**

*Cephus occidentalis* Marl.

For short article see Riley and Howard, Insect Life, v. II, p. 286, 1890.

EXHIBIT: Adult, work and figure.

**JOINT-WORMS.**

For special articles to four following species see Howard, Tech. Ser. 2, Div. Ent., U. S. Dept. Agric., 24 pp., 1896; also Webster, Bul. 42, Div. Ent., U. S. Dept. Agric., 62 pp., 1903.

**GREATER WHEAT-STRAW WORM.**

*Isosoma grande* Riley.

EXHIBIT: Adult and figure.

**BARLEY-STRAW WORM.**

*Isosoma hordei* Harr.

EXHIBIT: Adult, work and figure.

**THE WHEAT JOINT-WORM.**

*Isosoma tritici* Riley.

EXHIBIT: Adult, work and figure.

**THE HAIRY-FACED JOINT-WORM.**

*Isosoma hirtifrons* How.

EXHIBIT: Adult and figure.

**THE HESSIAN FLY.***Cecidomyia destructor* Say.(Should be known as *Mayetiola*.)

For general article with bibliography see Osborn, Bul. 16, n. s. Div. Ent., U. S. Dept. Agric., 57 pp., 1898; Marlatt, Farmers' Bul. 132, U. S. Dept. Agric., pp. 13-22, 1901.

EXHIBIT: Puparia, adult, work, figures, and map.

**THE GREATER WHEAT-STEM MAGGOT.***Meromyza americana* Fitch.

For general article see Webster, Bul. 42, Div. Ent., U. S. Dept. Agric., pp. 43-51, 1903.

EXHIBIT: Adult, work and figure.

**THE AMERICAN FRIT-FLY.***Oscinias soror* Macq.

For general article see Webster, Bul. 42, Div. Ent., U. S. Dept. Agric., pp. 57-62, 1903.

EXHIBIT: Adult, work, and figure.

**THE LESSER WHEAT-STRAW MAGGOT.***Oscinias carbonaria* Loew.

For general article see Webster, Bul. 42, Div. Ent., U. S. Dept. Agric., pp. 51-56, 1903.

EXHIBIT: Adult.

**CHLOROPS PROXIMA** Say.

For short account see Comstock, Rept. U. S. Comm. Agric., 1879, pp. 257-258, 1880.

EXHIBIT: Adult and work.

**INSECTS INJURIOUS TO HOPS.****THE HOP PLANT-LOUSE.***Phorodon humuli* Schr.

(Attacks hop and plum.)

For full life history see Riley, Circ. 2, Div. Ent., U. S. Dept. Agric., 1891.

EXHIBIT: Adult, work, and figures, with two enemies: *Chrysopa* sp. and *Adalia bipunctata* Linn.

**THE COMMA BUTTERFLY.***Polygona comma* Harr.(Formerly *Grapta*.)

For general account see Howard, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., pp. 50-51, 1897.

EXHIBIT: Larva and adult.

**THE SEMICOLON BUTTERFLY.***Polygona interrogationis* Fab.

For general account see Howard, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., pp. 47-49, 1897.

EXHIBIT: Larva and adult.

**THE HOP GRUB.***Gortyna immanis* Guen.

For general account and life history see Howard, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., pp. 40-44, 1897.

EXHIBIT: Pupa, adult, and work.

**THE HOP SNOUT-MOUTH.***Hypena humuli* Harr.

For general account see Howard, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., pp. 44-47, 1897.

EXHIBIT: Larva, pupa and adult.

**THE VARIEGATED CUTWORM.***Peridroma saucia* Hübn.

For general bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent., U. S. Dept. Agric., pp. 46-64, 1901.

EXHIBIT: Larva and adult.

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**INSECTS INJURIOUS TO CLOVER.**

For list of clover insects, and short articles on several important species see Bruner and Hunter, Rpt. St. Bd. Agr. Nebr., pp. 240-285, 1898.

**INJURING THE ROOTS.****THE CLOVER ROOT-BORER.***Hylastinus trifolii* Müll.

(Formerly *Hylastes*.)

For general articles see Riley, Rpt. U. S. Dept. Agr., f. 1878, pp. 248-250, 1879.

EXHIBIT: Adult, work, figure, and enemy, *Telephorus bilineatus* Say.

**INJURING THE STEM.****THE CLOVER STEM-BORER.***Languria mozardi* Latr.

For general account see Weed, Bul. Ohio Agr. Expt. Sta., 2d series, v. III, No. 8, p. 235, 1890.

EXHIBIT: Adult.

### INJURING THE LEAVES.

#### THE CLOVER MITE.

*Bryobia pratensis* Garm.

For general article see Garman, 14th Rpt. St. Ent. Ill., p. 73, 1885; Bruner, Rpt. Nebr. St. Bd. Agric., f., 1898, pp. 280-284, 1899; Marlatt, Circ. 19, Div. Ent., U. S. Dept. Agric., 1897.

EXHIBIT: Figure.

#### CLOVER ALEYRODES.

*Aleyrodes* sp.

EXHIBIT: Adult and work.

#### THE WHEAT THrips.

*Thrips tritici* Fitch.

For citations to literature see Lintner, 11th Rpt. N. Y. St. Ent., pp. 247-250, 1896.

EXHIBIT: Figure.

#### THE CLOVER-LEAF WEEVIL.

*Phytonomus punctatus* Fabr.

For general account see Lintner, 1st. Rpt. St. Ent. N. Y., pp. 247-253, 1883; Sanderson, Insects injurious to staple crops, pp. 177-179, 1902.

EXHIBIT: Larva, cocoon, adult, work, figure, and enemy, *Collops 4-maculatus* Fab.

#### THE GRAPE-VINE COLASPIST.

*Colaspis brunnea* Fab.

For general article see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 13-14, 1903.

EXHIBIT: Adult.

#### THE 12-SPOTTED CUCUMBER BEETLE.

*Diabrotica duodecimpunctata* Oliv.

For general account and remedies see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 12-13, 1903; Quaintance, Bul. 26, n. s., Div. Ent., U. S. Dept. Agric., pp. 35-40, 1900.

EXHIBIT: Adult, figure, and parasite, *Celatoria diabroticæ*.

#### WESTERN CORN ROOT-WORM.

*Diabrotica longicornis* Say.

For general account see Forbes, 12th Rpt. St. Ent. Ill., pp. 10-31, figs. 1-5, 1883.

EXHIBIT: Adult.

#### THE IMBRICATED SNOUT-BEETLE.

*Epicerus imbricatus* Say.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 28-29, 1903; Bul. 19, n. s., pp. 62-67, 1899.

EXHIBIT: Adult.

**THE GIBBOUS JUNE-BEETLE.***Lachnostenra gibbosa* Burm.

For general account of white grubs see Forbes, 18th Rpt. St. Ent. Ill., pp. 109-144, 1894.

EXHIBIT: Adult.

**THE FLA VESCENT CLOVER-WEEVIL.***Sitones flavescens* Marsh.

For brief account see Osborn and Gossard, Bul. 14, Ia. Agric. Expt. Sta., pp. 177-178, 1891.

EXHIBIT: Adult.

**GRAPHORHINUS VADOSUS Say.**

For brief account see Webster, Amer. Nat., v. XVI, p. 746, 1882.

EXHIBIT: Adult.

**THE ASH-GRAV BLISTER-BEETLE.***Macrobasis unicolor* Kby.

For general account see Chittenden, Yearbook, U. S. Dept. Agric., 1898, pp. 249-250.

EXHIBIT: Adult.

**FOUR-LINED PLANT-BUG.***Pæcilocapsus lineatus* Fab.

For general accounts see Lintner, 1st. Rpt. St. Ent. N. Y., pp. 271-281, 1883; Slingerland, Bul. 58, Cornell Univ. Agr. Expt. Sta., pp. 207-239, 1893.

EXHIBIT: Adult.

**THE TARNISHED PLANT-BUG.***Lygus pratensis* Linn.

For general account see Riley, Rpt. U. S. Dept. Agric., f. 1884, pp. 312-315, 1885.

EXHIBIT: Adult.

**THE CLOVER-LEAF MIDGE.***Cecidomyia trifolii* Loew.

For brief articles see Bruner, Rpt. St. Bd. Agric. Nebr., 1898, pp. 250-251, 1899; Comstock, Rpt. U. S. Dept. Agric., 1879, pp. 197-199, 1880.

EXHIBIT: Cocoon, adult, and work.

**THE RED-BANDED LEAF-ROLLER.***Eulia triferana* Walk.

(Formerly *Lophoderus*.)

For brief accounts see Lugger, 4th Rpt. State Ent. Minn., p. 231, 1899; Forbes, 14th Rpt. St. Ent. Ill., pp. 20-21, 1885.

EXHIBIT: Pupa and adult.

**THE RUSTY-BROWN TORTRIX.**

*Platynota flavedana* Clem.

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 231-232, 1899.

EXHIBIT: Eggs, pupa, and adult.

**THE SULPHUR-COLORED TORTRIX.**

*Epagoge sulfureana* Clem.

(Formerly *Tortrix* and *Dichelia*.)

For brief account see Lugger, 4th Rpt. S. Ent. Minn., pp. 232-233, 1899. For bibliography see Forbes, 14th Rpt. St. Ent. Ill., pp. 17-20, 1885.

EXHIBIT: Pupa, adult, and work.

**CÆLOSTATHMA DISCOPUNCTANA** Clem.

(Formerly *Amphisa*.)

For brief notice see Comstock, Rpt. U. S. Dept. Agric., f. 1880, p. 258, 1881.

EXHIBIT: Pupa and adult.

**THE FALL ARMY WORM.**

*Laphyga frugiperda* S. & A.

For full life history and bibliography see Chittenden, Bul. 29, n. s., Div. Ent., U. S. Dept. Agric., pp. 13-45, 1901.

EXHIBIT: Adult.

**ANAPHORA POPEANELLA** Clem.

For general account see Riley and Howard, Insect Life, v. III, pp. 27-28, 1890.

EXHIBIT: Adult.

**THE OBLIQUE-BANDED LEAF-ROLLER.**

*Archips rosaceana* Harr.

(Formerly *Caeæcia*.)

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 226-227, 1899.

EXHIBIT: Pupa and adult.

**THE GARDEN WEB-WORM.**

*Loxostege similalis* Guen.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 39-40, 1903.

EXHIBIT: Adult and work.

**ARISTOTELIA ROSEOSUFFUSSELLA** Clem.

(Formerly *Gelechia*.)

For brief reference to food plant see Murtfeldt, Bul. 23, Div. Ent., U. S. Dept. Agric., p. 54, 1891.

EXHIBIT: Pupa and adult.

**ECTROPIS CRESPUSCULARIA D. and S.**

(Has been placed in genera *Cymatophora*, *Cleora*, and *Boarmia*.)

For brief accounts see Packard, 5th Rpt. U. S. Ent. Comm., p. 371, 1890; Lugger, 4th Rpt. St. Ent. Minn., p. 188, 1899.

EXHIBIT: Adult.

**DRASTERIA ERECHTEA Cram.**

For general account see Slingerland, Insect Life, vol. V, pp. 87-88, 1892.

EXHIBIT: Larva, cocoon, pupa, and adult.

**THE CHICKWEED GEOMETER.**

*Hæmatopsis grataria* Fabr.

For brief notice see Forbes, 14th Rpt. St. Ent. Ill., p. 74, 1885.

EXHIBIT: Adult.

**IO MOTH.**

*Automeris io* Fab.

For general account see Lugger, 4th Rpt. State Ent. Minn., pp. 126-129, fig. 130, and pl. 16, fig. 129, 1899.

EXHIBIT: Larva, cocoon, and adult.

**CATOPYRRHA DISSIMILARIA Hüb.**

(Formerly *Aspilates*.)

EXHIBIT: Adult.

**THE GREEN CLOVER WORM.**

*Plathympena scabra* Fab.

(Formerly called *Hypena*.)

For accounts see Comstock, Rpt. U. S. Dept. Agric., 1879, p. 252, 1880; Chittenden, Bull. 30, n. s., Div. Ent., U. S. Dept. Agric., p. 44-50, 1901.

EXHIBIT: Larva, pupa, and adult.

**THE SMALL WHITE BRISTLY CUTWORM.**

*Mamestra renigera* Steph.

For short account see Forbes, 16th Rpt. St. Ent. Ill., pp. 95-96, 1890.

EXHIBIT: Larva, pupa, and adult.

**THE CLOVER CUTWORM.**

*Mamestra trifolii* Rott.

For account see Riley, Rpt. U. S. Dept. Agric. f. 1883, pp. 123-124, 1883.

EXHIBIT: Larva and adult.

**ARMY WORM.**

*Heliothis unipuncta* Harv.

(Formerly *Leucania*.)

For bibliography and life history see Lintner, 12th Rpt. N. Y. St. Ent., pp. 190-214, 1896.

EXHIBIT: Larva, pupa, and adult.

**THE VARIEGATED CUTWORM.***Peridroma saucia* Hübn.

For general bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent., U. S. Dept. Agric., pp. 46-64, 1902.

EXHIBIT: Larva, adult, and figure.

**THE COMMELINA OWLET MOTH.***Prodenia commelinæ* S. & A.

For life history and general account see Chittenden, Bul. 27, n. s., Div. Ent., U. S. Dept. Agric., pp. 59-64, Pl. IV, fig. 1, 1901.

EXHIBIT: Larva, pupa, and adult.

**THE DARK-SIDED CUTWORM.***Euxoa messoria* Harr.

(Formerly *Carneades*.)

For general account see Riley, Rept. U. S. Dept. Agric. f. 1884, pp. 290-291, 1885.

EXHIBIT: Larva and adult.

**THE SMEARED DAGGER.***Apatela oblinita* S. & A.

(Also called *Acronycta*.)

For general account see Packard, 5th Rpt. U. S. Ent. Comm., pp. 567-568, 1890.

EXHIBIT: Larva, cocoon, and adult.

**THE BRONZED CUTWORM.***Nephelodes minians* Guen.

For life history and partial bibliography see Lintner, 1st Rpt. St. Ent. N. Y., pp. 99-110, 1882; Riley, Rpt. U. S. Dept. Agric. f. 1890, pp. 244-246, 1891.

EXHIBIT: Larva and adult.

**THE CABBAGE LOOPER.***Autographa brassicæ* Riley.

(Formerly *Plusia*.)

For general account and life history see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 60-69, 1902.

EXHIBIT: Larva, adult, and figure.

**THE NAIS TIGER-MOTH.***Apantesis nais* Dru.

For account see Beutenmuller, "Cat. Lepid. N. Y." Ann. Acad. N. Y., p. 206, 1890.

EXHIBIT: Adult.

**ZEBRA CATERPILLAR.***Mamestra picta* Harr.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 42-43, 1903.

EXHIBIT: Larva and adult.

**THE ISABELLA TIGER-MOTH.***Isia isabella* S. & A.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 44-45, 1903.

EXHIBIT: Larva and adult.

**THE NORTHERN CLOUDY-WING.***Thorybes pylades* Scud.

(Formerly *Eudamus*.)

EXHIBIT: Adult.

**THE COMYNTAS BUTTERFLY.***Everes comyntas* Godt.

(Formerly *Lycæna*.)

For brief account see Lintner, 4th Rpt. N. Y. St. Ent., p. 137, 1888.

EXHIBIT: Adult.

**THE AMERICAN COPPER.***Heodes hypophlaeas* Bd.

(Formerly *Chrysophanus*.)

EXHIBIT: Adult.

**LEMONIAS EDITHA** Bd.

(Formerly *Melitæa*.)

EXHIBIT: Figure.

**SOUTHERN DOG-FACE BUTTERFLY.***Zerene cesonia* Stall.

(Formerly *Colias*.)

For brief notice see Thomas, 10th Rpt. St. Ent. Ill., p. 78, 1881; Howard, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., p. 84, 1897.

EXHIBIT: Adult.

**THE ORANGE SULPHUR.***Euryimus eurytheme* Bd.

(Formerly *Colias*.)

For brief account see French, 7th Rpt. St. Ent. Ill., pp. 147-148, 1878.

EXHIBIT: Larva and adult.

**THE YELLOW BUTTERFLY.***Euryimus philodice* Godt.

(Formerly *Colias*.)

For brief account see Davis, Bul. 116, Mich. Agr. Expt. Sta., p. 61, 1894.

EXHIBIT: Adult.

**THE CLOUDLESS SULPHUR.***Callidryas eubule* Linn.

For brief account see French, 7th Rpt. St. Ent. Ill., pp. 147-148, 1878.

EXHIBIT: Larva, pupa, and adult.

**THE BLACK-BORDERED YELLOW.***Eurema nicippe* Cram.

(Formerly called *Terias*.)

For brief account see French, 7th Rpt. St. Ent. Ill., p. 148, 1878.

EXHIBIT: Larva, pupa, and adult.

**THE LITTLE SULPHUR.***Eurema euterpe* Men.

(Formerly *Terias lisa*.)

For brief account see French, 7th Rpt. St. Ent. Ill., p. 148, 1878.

EXHIBIT: Adult.

**OLETHREUTES INSTRUTANA** Clem.

EXHIBIT: Adult.

**THE CLOVER HAY WORM.***Hypsopygia costalis* Fab.

(Formerly called *Asopia* and *Pyralis*.)

For bibliography and general account see Lintner, 11th Rpt. St. Ent. N. Y., pp. 145-151, 1896.

EXHIBIT: Larva and adult.

**THE MEAL SNOUT-MOTH.***Pyralis farinalis* Linn.

For short account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., pp. 10-11, 1897.

EXHIBIT: Larva, pupa, cocoon, and adult.

**THE CLOVER PLANT-LOUSE.***Macrosiphum trifolii* Perg.

(Attacks dandelion, oats, red clover, strawberry, wheat, &c.)

For general account see Pergande, Bul. 44, Div. Ent., U. S. Dept. Agric., pp. 21-23, 1904.

EXHIBIT: Figure.

**THE TWO-STRIPED LOCUST.***Melanoplus bivittatus* Say.

For bibliography and general accounts see Seudder, Proc. U. S. N. M., v. XX, pp. 363-368, pl. 24, fig. 5, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 31-32, 1891.

EXHIBIT: Adult and figure.

**THE LESSER LOCUST.***Melanoplus atlantis* Riley.

For bibliography and general accounts see Scudder, Proc. U. S. N. M., v. XX, pp. 178-183, pl. 12, fig. 7, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 26-27, 1891.

EXHIBIT: Adult.

**THE DIFFERENTIAL LOCUST.***Melanoplus differentialis* Thos.

For bibliography and general accounts see Scudder, Proc. U. S. N. M., v. XX, pp. 349-354, pl. 23, figs. 3 and 4; Morgan, Bul. 30, n. s., Div. Ent., U. S. Dept. Agric., pp. 7-26, 1901.

EXHIBIT: Adult.

**RED-LEGGED LOCUST.***Melanoplus femur-rubrum* DeG.

For bibliography and general accounts see Scudder, Proc. U. S. N. M., v. XX, pp. 278-285; pl. 1, fig. h; pl. 19, figs. 1-3, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 27-28, 1891.

EXHIBIT: Adult.

**THE ROCKY-MOUNTAIN LOCUST.***Melanoplus spretus* Thos.

For bibliography and general accounts see Scudder, Proc. U. S. N. M., vol. XX, pp. 184-190, pl. 12, fig. 8, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 9-26, 1891.

EXHIBIT: Adult.

**INJURING THE FLOWERS AND SEEDS.****THE CLOVER-FLOWER MIDGE.***Cecidomyia leguminicola* Lint.

(Should be known as *Dasyneura trifolii* Lint.)

For general account see Riley, Rpt. U. S. Dept. Agric., 1878, pp. 250-252, 1879.

EXHIBIT: Cocoon, adult, and figure.

**THE CLOVER-SEED CHALCIS-FLY.***Bruchophagus funebris* How.

For brief accounts see Hopkins, Bul. 6, n. s., Div. Ent., U. S. Dept. Agric., p. 73, 1896, and Bul. 17, n. s., p. 45, 1898; Titus, Bul. 44, Div. Ent., U. S. Dept. Agric., pp. 77-80, 1904.

EXHIBIT: Adult and work.

**THE CLOVER-SEED WORM.***Enarmonia interstinctana* Clem.

(Formerly called *Grapholitha*.)

For bibliography and general account see Lintner, 11th Rpt. St. Ent. N. Y., pp. 152-157, 1896.

EXHIBIT: Pupa, adult, and work.

## INSECTS INJURIOUS TO SUGAR BEET.

For general articles see Forbes and Hart, Bul. 60, Ill. Agr. Expt. Sta., 136 pp., 1900; Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., 71 pp., 1903.

### **RED-LEGGED LOCUST.**

*Melanoplus femur-rubrum* DeG.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 278-285, pl. 1, fig. h. pl. 19, figs. 1-4, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 27-28, 1891.

**EXHIBIT:** Adult and figure.

### **THE DIFFERENTIAL LOCUST.**

*Melanoplus differentialis* Thos.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 349-354, pl. 23, figs. 3 and 4, 1897; also Morgan, Bul. 30, n. s., Div. Ent., U. S. Dept. Agric., pp. 7-26, 1901.

**EXHIBIT:** Adult and figure.

### **THE ROCKY-MOUNTAIN LOCUST.**

*Melanoplus spretus* Thos.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 184-190, pl. 12, fig. 8, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 9-26, 1891.

**EXHIBIT:** Adult.

### **THE TWO STRIPED LOCUST.**

*Melanoplus bivittatus* Say.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 363-368, pl. 24, fig. 5, 1897.

**EXHIBIT:** Adult, nymph, and figure.

### **THE LESSER LOCUST.**

*Melanoplus atlantis* Riley.

For bibliography and general account see Scudder, Proc. U. S. N. M., v. XX, pp. 178-183, pl. 12, fig. 7, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 26-27, 1891.

**EXHIBIT:** Adult.

### **THE CAROLINA LOCUST.**

*Dissosteira carolina* Linn.

For short account see Forbes and Hart, Bul. 60, Ill. Agr. Expt. Sta., pp. 479-480, 1900.

**EXHIBIT:** Nymph, adult, and parasite *Frontina frenchii* Will.

### **THE BEET LEAF-MINER.**

*Pegomya vicina* Lint.

**EXHIBIT:** Adult and figure.

**THE BEET CHLOROPS.***Chlorops assimilis* Macq.

EXHIBIT: Puparium and adult.

**THE COMMON ARMY WORM.***Heliothis unipuncta* Harr.(Formerly *Leucania*.)

For bibliography and life history see Lintner, 12th Rept. St. Ent. N. Y., pp. 190-214, 1896.

EXHIBIT: Larva and adult.

**THE VARIEGATED CUTWORM.***Peridroma saucia* Hüb.

For general bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent., U. S. Dept. Agric., pp. 46-64, 1902.

EXHIBIT: Larva, adult, and figure.

**THE PURSLANE CATERPILLAR.***Copidryas gloveri* G. & R.

EXHIBIT: Larva and adult.

**FALL ARMY WORM.***Laphygma frugiperda* S. & A.

For full bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent., U. S. Dept. Agric., pp. 40-45, 1901.

EXHIBIT: Larva, adult, and figure.

**THE WHITE-LINED SPHINX.***Deilephila lineata* Fabr.

EXHIBIT: Adult and figure.

**THE BEET ARMY WORM.***Caradrina exigua* Hüb.

For general articles see Gillette, 12th Rpt. Colo. Agr. Expt. Sta., p. 39, 1900; Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 37-46, 1902.

EXHIBIT: Adult and figure.

**THE ZEBRA CATERPILLAR.***Mamestra picta* Harr.

For bibliography and general life history see Felt, 14th Rpt. N. Y. St. Ent., pp. 201-207, 1898.

EXHIBIT: Larva and adult.

**GARDEN WEB-WORM.***Loxostege similalis* Guen.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 39-40, 1903.

EXHIBIT: Cocoon, adult, and figure.

**THE SUGAR-BEET WEBWORM.***Loxostege sticticalis* Linn.

For general account see Forbes, Bul. 60, Ill. Agr. Expt. Sta., p. 457-459, 1900.

**EXHIBIT:** Cocoon, pupa, adult, and figure.

**THE ISABELLA TIGER MOTH.***Isia isabella* S. & A.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 44-45, 1903.

**EXHIBIT:** Larva, adult, and figure.

**THE CLOVER CUTWORM.***Mamestra tripolii* Rott.

For account see Riley, Rept. U. S. Dept. Agric., 1883, pp. 123-124, 1883.

**EXHIBIT:** Larva, adult, and parasites *Ophion purgatum* Say. and *Euphorocera claripennis* Macq.

**THE CABBAGE LOOPER.***Autographa brassicae* Riley.

For general account and life history see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 60-69, 1902.

**EXHIBIT:** Larva, adult, and parasite *Limneria tibiator* Cr

**THE GARDEN FLEA-HOPPER.***Halticus uhleri* Giard.

For general account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 57-62, 1899.

**EXHIBIT:** Adult and figure.

**THE TARNISHED PLANT-BUG.***Lytus pratensis* Linn.

For general account see Riley, Rept. U. S. Dept. Agric. f. 1884, pp. 312-315, 1885.

**EXHIBIT:** Adult and figure.

**THE SANDY GROUND BUG***Emblethis arenarius* Linn.

**EXHIBIT:** Adult.

**PURSLANE BUG.***Geocoris bullatus* Say.

**EXHIBIT:** Adult.

**THE MILITARY BUG.***Hadroneura militaris* Uhl.

**EXHIBIT:** Adult.

**CLOUDED PIGWEED BUG.***Sphragisticus nebulosus* Fall.

**EXHIBIT:** Adult.

**THE BROWN LEAF-HOPPER.***Agallia sanguinolenta* Prov.

EXHIBIT: Adult.

**THE CHINCH-BUG.***Blissus leucopterus* Say.

For general article and life history see Webster, Bul. 15, n. s., Div. Ent., U. S. Dept. Agric., 82 pp. 1898.

EXHIBIT: Eggs, nymph, adult, and figure.

**THE FALSE CHINCH-BUG.***Nysius angustatus* Uhl.

(Attacks many garden crops.)

EXHIBIT: Adult and figure.

**HOODED PLANT-BUG.***Euthocatha galeator* Fab.

EXHIBIT: Eggs, nymph, and adult.

**THE IMBRICATED SNOUT-BEETLE.***Epicaerus imbricatus* Say.

For detailed account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 62-67, 1899.

EXHIBIT: Adult and figure.

**THE GIBBOUS JUNE BEETLE.***Lachnostenra gibbosa* Burm.

For general account of white grub see Forbes, 18th Rept. St. Ent. Ill., pp. 109-144, 1894.

EXHIBIT: Adult and figure.

**THE 12-SPOTTED CUCUMBER BEETLE.***Diabrotica duodecimpunctata* Ol.

For general account and remedies see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 12-13, 1903; Quaintance, Bul. 26, n. s., pp. 35-40, 1900.

EXHIBIT: Adult, figures, and parasite *Celatoria diabroticeæ*.**MONOCREPIDIUS VESPERTINUS** Fab.

EXHIBIT: Adult and figure.

**PENCILED SNOUT-BEETLE.***Centrimus penicellus* Hbst.

EXHIBIT: Adult.

**THE GREATER SUGAR-BEET LEAF-BEETLE.***Monoxia puncticollis* Say.

EXHIBIT: Adult and figure.

**THE LESSER SUGAR-BEET LEAF-BEETLE.***Monoxia consputa* Lec.

EXHIBIT: Adult and figure.

**THE GRAPE-VINE COLASPIST.***Colaspis brunnea* Fab.

For general article see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 13-14, 1903.

EXHIBIT: Adult and figure.

**WHITE GRUB; MAY BEETLE.***Lachnostenus fusca* Fröh.

For account of white grubs injuring corn see Forbes, 18th Rept. St. Ent. Ill., pp. 109-145, 1894.

EXHIBIT: Adult and figure.

**THE CONVEX FLEA-BEETLE.***Psylliodes convexior* Lec.

EXHIBIT: Adult.

**THE PALE-STRIPED FLEA-BEETLE.***Systema blanda* Mels.

For general articles see Chittenden, Bul. 23, n. s., Div. Ent., U. S. Dept. Agric., pp. 22-29, 1900; Bul. 43, Div. Ent., p. 16, 1903.

EXHIBIT: Adult and figure.

**THE SPINACH FLEA-BEETLE.***Disonycha xanthomelena* Dalm.

EXHIBIT: Adult, figure, and parasite *Hypostena barbata* Coq.

**THE WAVY-NECKED FLEA-BEETLE.***Disonycha crenicollis* Say.

EXHIBIT: Adult.

**THE TRIANGULAR FLEA-BEETLE.***Disonycha triangularis* Say.

EXHIBIT: Adult.

**THE CUCUMBER FLEA-BEETLE.***Epitrix cucumeris* Harr.

For short account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 89-90, 1899.

EXHIBIT: Adult and figure.

**THE TOOTHED FLEA-BEETLE.***Chatocnema denticulata* Illig.

EXHIBIT: Adult.

**THE ASH-GRAY BLISTER-BEETLE.***Macrobasis unicolor* Kby.

For short article see Chittenden, Yearbook, U. S. Dept. Agric., f. 1898, pp. 249-250, 1899.

EXHIBIT: Adult.

**THE SPOTTED BLISTER-BEETLE.***Epicauta maculata* Say.

For general account see Saunders, Bul. 57, S. Dak. Agric. Expt. Sta., p. 52, 1898; Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 24-25, 1903.

EXHIBIT: Adult and figure.

**THE MARGINATED BLISTER-BEETLE.***Epicauta cinerea* Först.

For brief account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 25, 1903.

EXHIBIT: Adult and figure.

**BLACK BLISTER-BEETLE.***Epicauta pennsylvanica* DeG.

For brief account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 25, 1903.

EXHIBIT: Adult and figure.

**THE STRIPED BLISTER-BEETLE.***Epicauta rittata* Fabr.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Agric., pp. 22-23, 1903.

EXHIBIT: Adult and figure.

**NUTTALL'S BLISTER-BEETLE.***Cantharis nuttalli* Say.

For short article see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 27, 1903.

EXHIBIT: Adult and figure.

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**INSECTS INJURIOUS TO TOBACCO.**

For general articles see Howard, Farmers' Bul. 120, U. S. Dept. Agric., 1900; Yearbook, 1898, pp. 120-150.

**NORTHERN TOBACCO WORM; TOMATO WORM.***Phlegethonius quinquemaculata* Haw.

(Formerly *Protoparce celeus*.)

For general account see Howard, Farmers' Bul. 120, U. S. Dept. Agric., pp. 10-14, 1900.

EXHIBIT: Larva, pupa, adult, and figure.

**SOUTHERN TOBACCO WORM; HORNBLOWER.***Phlegethonius sexta* Joh.

(Formerly *Protoparce carolina*.)

For general account see Howard, Farmers' Bul. 120, U. S. Dept. Agric., pp. 10-14, 1900; Alwood, Bul. 17, n. s., Div. Ent., U. S. Dept. Agric., pp. 72-74, 1898.

EXHIBIT: Larva, pupa, adult, and figure.

**TOBACCO BUDWORM.***Chloridea virescens* Fab.(Formerly *Heliothis rheoxiae* S. & A.)

For general account see Howard, Farmers' Bul. 120, U. S. Dept. Agric., pp. 14-16, 1900.

EXHIBIT: Pupa, adult, and figure.

**THE VARIEGATED CUTWORM.***Peridroma saucia* Hübn.

For general bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent., U. S. Dept. Agric., pp. 46-64, 1901.

EXHIBIT: Adult and figure.

**THE BLACK CUTWORM.***Agrotis ypsilon* Rott.

For general account see Riley, Rpt. U. S. Dept. Agric. f. 1884, pp. 294-295, 1885.

EXHIBIT: Adult and figure.

**CORN-EAR WORM; COTTON BOLLWORM.***Heliothis obscura* Fab.

(Feeds also on tobacco and tomato. For special case illustrating life history see under cotton and corn exhibits.)

For life history and general account see Quaintance, Farmers' Bul., 191, U. S. Dept. Agric., 1904.

EXHIBIT: Larva, pupa, adult, and figure.

**GRANULATED CUTWORM.***Feltia annexa* Tr.

For general account see Riley, Rpt. U. S. Dept. Agric. 1884, pp. 291-292, 1885. For description of stages see French Canad. Ent., v. XIV, pp. 207-210, 1882.

EXHIBIT: Adult and figure.

**THE PRETTY CUTWORM.***Mamestra legitima* Grt.

For brief account see Howard, Farmers' Bul. 120, U. S. Dept. Agric., pp. 24-25, fig. 20, 1900.

EXHIBIT: Larva, pupa, adult, and figure.

**THE COMMELINA OWLET MOTH.***Prodenia commelinæ* S. & A.

For life history and general account see Chittenden, Bul. 27, n. s., Div. Ent. U. S. Dept. Agric., pp. 59-64, pl. iv, fig. 1, 1901.

EXHIBIT: Larva, adult, and figure.

**THE CABBAGE LOOPER.***Autographa brassicæ* Riley.

For general account and life history see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 60-69, 1902.

EXHIBIT: Adult and figure.

**ECANTHUS QUADRIMACULATUS** Beut.

For brief notice as *E. fasciatus* see Howard, Farmers' Bul. 120, U. S. Dept. Agric., p. 25, 1900.

EXHIBIT: Adult.

**TOBACCO SUCKFLY.***Dicyphus minimus* Uhl.

For general account see Howard, Farmers' Bul. 120, U. S. Dept. Agric., pp. 16-18, 1900.

EXHIBIT: Adult and figure.

**TOBACCO SPLITWORM; POTATO-TUBER WORM.***Phthorimæa operculella* Zell.

(Works in leaves and stems. Formerly called *Gelechia solanella*.)

For general accounts see Riley and Howard, Insect Life, v. IV, pp. 239-242, 1892; Howard, Farmers' Bul. 120, U. S. Dept. Agric., pp. 19-22, 1900.

EXHIBIT: Adult and figure.

**THE TOBACCO FLEA-BEETLE.***Epitrix parvula* Fab.

For general account and life history see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 85-87, 1899; Howard, Farmers' Bul. 120, U. S. Dept. Agric., pp. 5-10, 1900.

EXHIBIT: Adult and figure.

**THE TOBACCO STALK WEEVIL.***Trichobaris mucorea* Lec.

For general account see Chittenden, Bul. 38, Div. Ent., U. S. Dept. Agric., pp. 66-70, 1902.

EXHIBIT: Cocoon, adult, and work.

**EUSCHISTUS VARIOLARIUS** Beauv.

For brief accounts see Garman, Bul. 66, Ky. Agr. Exp. Sta., pp. 33-34, 1897; Howard, Farmer's Bul. 120, U. S. Dept. Agric., pp. 18-19, 1900.

EXHIBIT: Adult.

**THE TOBACCO THRIPS.***Thrips tabaci* Lind.

For brief account see Howard, Farmer's Bul. 120, U. S. Dept. Agric., pp. 24-25, 1900.

EXHIBIT: Figure.

**THE CIGARETTE BEETLE.***Lasioderma testaceum* Dufts.(Formerly *L. serricorne*.)

For general account see Chittenden, Bul. 4, n. s., revis. ed., Div. Ent., U. S. Dept. Agric., pp. 126-127, 1897.

EXHIBIT: Adult, work, and figure.

**THE DRUG-STORE BEETLE.***Sitodrepa panicea* Linn.

For general account see Chittenden, Bul. 4, n. s., revis. ed., Div. Ent., U. S. Dept. Agric., pp. 124-126, 1897.

EXHIBIT: Adult and figure.

**INSECTS INJURIOUS TO BEANS AND PEAS.****THE LIMA-BEAN STEM-BORER.***Monoptilotia nubilella* Hulst.

(Bores in stalks of Lima beans.)

For life history and general account see Chittenden, Bul. 23, n. s., Div. Ent., U. S. Dept. Agric., pp. 9-17, 1900.

EXHIBIT: Larva, cocoon, adult, work, and figure.

**SMALLER CORN STALK-BORER.***Elasmopalpus lignosellus* Zell.

For life history and general account see Chittenden, Bul. 23, n. s., Div. Ent., U. S. Dept. Agric., pp. 17-22, 1900.

EXHIBIT: Larva, adult, and figure.

**NUTTALL'S BLISTER BEETLE.***Cantharis nuttalli* Say.

For short article see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 27, 1903.

EXHIBIT: Adult and figure.

**THE ASH-GRAY BLISTER BEETLE.***Macrobasis unicolor* Kby.

For short article see Chittenden, Yearbook, U. S. Dept. Agric., f. 1898, pp. 249-250, 1899.

EXHIBIT: Adult.

**THE BEAN LEAF-BEETLE.***Cerotoma trifurcata* Först.(Formerly *C. caminea* Fab.)

For general account see Chittenden, Yearbook, U. S. Dept. Agric., 1898, pp. 253-254.

EXHIBIT: Adult and figure.

**THE BEAN LADYBIRD.***Epilachna corrupta* Muls.

For general account see Gillette, Bul. 47, Colorado Agr. Expt. Sta., pp. 41-43, 1898; Chittenden, Yearbook, U. S. Dept. Agric., f. 1898, pp. 251-253, 1899.

EXHIBIT: Adult and figure.

**THE 12-SPOTTED CUCUMBER BEETLE.***Diabrotica duodecimpunctata* Ol.

For general accounts and remedies see Quaintance, Bul. 26, n. s., Div. Ent., U. S. Dept. Agric., pp. 35-40, 1900; Chittenden, Bul. 43, pp. 12-13, 1903.

EXHIBIT: Adult.

**THE IMBRICATED SNOUT-BEETLE.***Epicaerus imbricatus* Say.

For detailed account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 62-67, 1899; for general account, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 28-29, 1903.

EXHIBIT: Adult.

**THE BANDED FLEA-BEETLE.***Systema tæniata* Say.

For short account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 17, 1903.

EXHIBIT: Adult.

**THE PALE-STRIPED FLEA-BEETLE.***Systema blanda* Melsh.

For general article see Chittenden, Bul. 23, n. s., Div. Ent., U. S. Dept. Agric., pp. 22-29, 1900; Bul. 43, p. 16, 1903.

EXHIBIT: Adult and figure.

**THE LEAF-MINING LOCUST BEETLE.***Odontota dorsalis* Thunb.

(Lives on locust, but attacks beans and other leguminous plants.)

For full life history, bibliography, and distribution see Chittenden, Bul. 38, Div. Ent., U. S. Dept. Agric., pp. 70-73, 1902.

EXHIBIT: Adult and figure.

**THE DISTENDED MAY BEETLE.***Lachnostenra farcta* Lec.

For short notices see Comstock, Rpt. U. S. Dept. Agric., 1879, pp. 247-248, Pl. V, fig. 5, 1880; Howard, Bul. 22, n. s., Div. Ent., U. S. Dept. Agric., p. 107, 1900.

EXHIBIT: Adult.

**THE GARDEN FLEA-HOPPER.***Halticus uhleri* Giard.

For general account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 57-62, 1899.

**EXHIBIT:** Adult and figure.

**THE DINGY CUTWORM.***Feltia subgothica* Haw.

For brief account see Chittenden, Yearbook, U. S. Dept. Agric., f. 1898, p. 257, 1899.

**EXHIBIT:** Adult.

**SALT-MARSH CATERPILLAR.***Estigmene acraea* Dru.

(Formerly called *Leucarctia*.)

For short account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 43-44, fig 41, 1903.

**EXHIBIT:** Adult.

**YELLOW-BEAR CATERPILLAR.***Diacrisia virginica* Fab.

(Formerly called *Spilosoma*.)

For general account see Lugger, 4th Rpt. State Ent. Minn., pp. 79-81, fig. 78, 1899.

**EXHIBIT:** Adult and figure.

**THE BEAN CUTWORM.***Ogdoconta cinereola* Guen.

(Feeds on buds and leaves.)

For life history and general account see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 98-100, 1902.

**EXHIBIT:** Adult and figure.

**THE ROLLER WORM.***Eudamus proteus* Linn.

(Feeds on buds and leaves.)

For general article and life history see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 92-96, 1902.

**EXHIBIT:** Larva, chrysalis, adult, and figure.

**COMMON BEAN WEEVIL.***Bruchus obtectus* Say.

For general account and life history see Chittenden, Yearbook, U. S. Dept. Agric., 1898, pp. 239-242.

**EXHIBIT:** Adult, work, and figure.

**THE PEA WEEVIL.***Bruchus pisorum* Linn.

For general account and life history see Chittenden, Yearbook, U. S. Dept. Agric., 1898, pp. 234-239.

EXHIBIT: Adult, work, and figure.

**THE COWPEA WEEVIL.***Bruchus chinensis* Linn.

For general account and life history see Chittenden, Yearbook, U. S. Dept. Agric., 1898, pp. 242-245.

EXHIBIT: Adult and figure.

**FOUR-SPOTTED BEAN-WEEVIL.***Bruchus quadrimaculatus* Boh.

For general account and life history see Chittenden, Yearbook, U. S. Dept. Agric., 1898, pp. 245-247.

EXHIBIT: Adult and figure.

**THE LENTIL WEEVIL.***Bruchus lentis* Boh.

For brief account see Chittenden, Yearbook, U. S. Dept. Agric., 1898, p. 248.

EXHIBIT: Adult.

**EUROPEAN BEAN-WEEVIL.***Bruchus rufimanus* Boh.

For general account see Chittenden, Yearbook, U. S. Dept. Agric., 1898, pp. 247-248.

EXHIBIT: Adult.

**THE MEXICAN BEAN-WEEVIL.***Spermophagus pectoralis* Shp.

For brief account see Chittenden, Yearbook, U. S. Dept. Agric., 1898, p. 248.

EXHIBIT: Adult and figure.

**THE GRAY HAIR-STREAK.***Uranotes melinus* Hübn.

(Works in pods of peas and beans, and in silk corn. Formerly *Thecla*.)

For brief article see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 101-102, 1902.

EXHIBIT: Larva, pupa, adult, and figure.

**BOLLWORM; CORN-EAR WORM.***Heliothis obscura* Fab.

(See special case for full life history with illustrations.)

For life history and general account see Quaintance, Farmers' Bul. 191, U. S. Dept. Agric., 1904.

EXHIBIT: Larva, adult, work, and figure.

**THE IMPORTED PEA-MOTH.***Semiasia nigricana* Steph.

For general accounts and life history see Fletcher, Rpt. Ent. and Bot., Can. Dept. Agric., 1900, p. 214, 1901; Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 96-98, 1902.

EXHIBIT: Adult and figure.

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**INSECTS INJURIOUS TO CRUCIFERS.****IMPORTED CABBAGE-WORM.***Pontia rapæ* Sch.

(Formerly *Pieris*.)

For general articles see Riley, Rpt. U. S. Dept. Agric., f., 1883, pp. 108-113, 1884; Lugger, 1st Rpt. St. Ent. Minn., pp. 71-77, Pl. VI, 1896.

EXHIBIT: Larva, chrysalis, and adult.

**THE LARGE CABBAGE BUTTERFLY.***Pontia monuste* Linn.

For general article see Riley, Rpt. U. S. Dept. Agric., 1883, pp. 117-118, 1884.

EXHIBIT: Adult.

**THE POT-HERB BUTTERFLY.***Pontia oleracea* Boisd.

(Formerly *Pieris*.)

For general account see Riley, Rpt. U. S. Dept. Agric., 1883, pp. 115-117, 1884.

EXHIBIT: Chrysalis and adult.

**THE SOUTHERN CABBAGE WORM.***Pontia protodice* Boisd.

For general articles see Riley, Rpt. U. S. Dept. Agric., f., 1883, pp. 114-115, 1884; Lugger, 1st Rpt. St. Ent. Minn., pp. 71-77, Pl. VII, 1896.

EXHIBIT: Chrysalis and adult.

**GARDEN WEB-WORM.***Loxostege similalis* Guen.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 39-40, 1903.

EXHIBIT: Adult and figure.

**GRANULATED CUTWORM.***Feltia annexa* Tr.

For description of eggs and larval stage see French, Can. Ent., v. XIV, pp. 207-210, 1882. For general account see Riley, Rpt. U. S. Dept. Agric., 1884, pp. 291-292, 1885.

EXHIBIT: Larva, pupa, adult, and figure.

**THE STRIPED CUTWORM.***Feltia subgothica* Haw.

For general account see Slingerland, Bul. 104, Cornell Univ. Agric. Expt. Sta., pp. 274-279, 1895.

EXHIBIT: Larva, adult, and figure.

**SHAGREENED CUTWORM.***Feltia malefida* Guen.

(Larvæ destroy young plants.)

For short account see Riley, Rpt. U. S. Dept. Agric., 1884, pp. 292-293, 1885.

EXHIBIT: Adult and figure.

**THE VARIEGATED CUTWORM.***Peridroma saucia* Hübn.

For general bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent., U. S. Dept. Agric., pp. 46-64, 1902.

EXHIBIT: Larva, adult, and figure.

**THE BLACK CUTWORM.***Agrotis ypsilon* Rott.

For general account see Riley, Rpt. U. S. Dept. Agric., 1884, pp. 294-295, 1885.

EXHIBIT: Larva, adult, and figure.

**THE SPECKLED CUTWORM.***Mamestra subjuncta* G. & R.

For general account see Riley, Rpt. U. S. Dept. Agric., 1884, p. 296, 1885.

EXHIBIT: Larva, pupa, and adult.

**THE GLASSY CUTWORM.***Hadena devastatrix* Brace.

For general account see Riley, Rpt. U. S. Dept. Agric., 1884, pp. 296-297, 1885.

EXHIBIT: Adult.

**THE W-MARKED CUTWORM.***Noctua clandestina* Harr.

For general account see Slingerland, Bul. 104, Cornell Univ. Agr. Expt. Sta., pp. 571-574, 1895.

EXHIBIT: Larva and adult.

**FALL ARMY WORM.***Laphygma frugiperda* S. & A.

For full bibliography and life history see Chittenden, Bul. 29, n. s., Div. Ent., U. S. Dept. Agric., pp. 40-45, 1901.

EXHIBIT: Larva, adult, and figure.

**THE CROSS-STRIPED CABBAGE WORM.***Evergestis rimosalis* Guen.(Formerly *Pionea*.)

For general article see Chittenden, Bul. 33 n. s., Div. Ent., U. S. Dept. Agric., pp. 54-59, 1902.

EXHIBIT: Larva, pupa, cocoon, adult, and figure.

**THE SALT-MARSH CATERPILLAR.***Estigmene acraea* Dru.(Formerly called *Leucarctia*.)

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 43-44, 1903.

EXHIBIT: Larva, cocoon, and adult.

**THE CABBAGE LOOPER.***Autographa brassicae* Riley.

For general account and life history see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 60-69, 1902.

EXHIBIT: Larva, cocoon, pupa, and adult.

**THE DIAMOND-BACK MOTH.***Plutella maculipennis* Curtis.(Formerly *P. cruciferarum*.)

For general account see Lugger, 1st. Rpt. St. Ent. Minn., p. 79, Pl. VI, 1896.

EXHIBIT: Larva, cocoon, adult, and work.

**HARLEQUIN CABBAGE-BUG.***Murgantia histrionica* Hahn.

(Feeds on cruciferous plants of all kinds.)

For general accounts see Riley, Rpt. U. S. Dept. Agric., 1884, pp. 309-312, 1885; Smith, Bul. 121, N. J. Agr. Expt. Sta., pp. 3-6, 1897.

EXHIBIT: Eggs, nymph, and adult.

**THE TARNISHED PLANT-BUG.***Lytta pratensis* Linn.

For general account see Riley, Rpt. U. S. Dept. Agric., f. 1884, pp. 312-315, 1885.

EXHIBIT: Adult.

**THE EGGPLANT FLEA-BEETLE.***Epitrix fuscula* Cr.

For general account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 87-89, 1899.

EXHIBIT: Adult and figure.

**THE RED TURNIP BEETLE.***Entomoscelis adonis* Pallas.

For partial life history, short accounts, and bibliography see Fletcher, Rpt. Ent. and Bot.; Can. Dept. Agr., 1892, pp. 152-155, 1893; loc. cit., 1900, pp. 241, 1901; Chittenden, Bull. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 49-53, 1902.

EXHIBIT: Figure.

**WESTERN CABBAGE FLEA-BEETLE.***Phyllotreta albionica* Lec.

EXHIBIT: Adult.

**HORSE-RADISH FLEA-BEETLE.***Phyllotreta armoraciae* Koch.

For general accounts see Chittenden, Ins. Life, v. VII, pp. 404-406, 1895; Bul. 9, n. s., Div. Ent., U. S. Dept. Agric., pp. 21-22, 1897.

EXHIBIT: Adult.

**THE WESTERN FLEA-BEETLE.***Phyllotreta pusilla* Horn.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 18-19, 1903.

EXHIBIT: Adult and figure.

**THE STRIPED FLEA-BEETLE.***Phyllotreta vittata* Fab.

For general account see Riley, Rpt. U. S. Dept. Agric., 1884, pp. 301-304, 1885.

EXHIBIT: Adult.

**WAVY-STRIPED FLEA-BEETLE.***Phyllotreta sinuata* Steph.

(Formerly *P. zimmermani*.)

For general account see Riley, Rpt. U. S. Dept. Agric., 1884, pp. 304-308, 1885.

EXHIBIT: Adult.

**THE CAULIFLOWER PYRALID.***Pachyzancla bipunctalis* Fab.

(Formerly *Botis repetitalis*.)

For description and brief accounts see Comstock, Rpt. U. S. Dept. Agric., 1880, p. 270, 1881; Riley, Rpt. U. S. Dept. Agric., 1883, pp. 128-129, 1884.

EXHIBIT: Pupa and adult.

**THE ZEBRA CATERPILLAR.***Mamestra picta* Harr.

For bibliography and general life-history see Felt, 14th Rpt. N. Y. St. Ent., pp. 201-207, 1898.

EXHIBIT: Larva, pupa and adult.

**THE CABBAGE MAGGOT.***Pegomya brassicæ* Bouché.(Formerly *Anthomyia*.)

For general account see Riley, Rpt. U. S. Dept. Agric., 1884, pp. 319-321, 1885.

EXHIBIT: Adult.

**THE CABBAGE PLANT-LOUSE.***Aphis brassicæ* Linn.

For general account see Riley, Rpt. U. S. Dept. Agric., 1884, pp. 317-319, 1885.

EXHIBIT: Adult and work.

**IMPORTED CABBAGE WEBWORM.***Hellula undalis* Fab.

For general account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 51-57, 1899.

EXHIBIT: Larva, pupa, adult and figure.

**THE CABBAGE CURCULIO.***Ceutorhynchus rapæ* Gyll.

For general account and partial life history see Chittenden, Bul. 23, n. s., Div. Ent., U. S. Dept. Agric., pp. 39-50, 1900.

EXHIBIT: Adult and figure.

**THE IMPORTED CABBAGE LEAF-MINER.***Scaptomyza graminum* Fall.(Formerly called *Oscinis brassicæ*.)

See Riley, Rpt. U. S. Dept. Agric., 1884, p. 322, 1885. For short account see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 76-77, 1902.

EXHIBIT: Adult.

**INSECTS INJURIOUS TO POTATO.****THE RINGED MILLIPEDE.***Cambala annulata* Say.

EXHIBIT: Figure.

**THE SHORT-WINGED MOLE-CRICKET.***Scapteriscus abbreviatus* Seudd.For general account see Chittenden, Bul. 40, Div. Ent., U. S. Dept. Agric., pp. 117-118, 1903. For account of an allied species *S. didactylus* Latr., see Barrett, Bul. 2, Porto Rico Agric. Expt. Sta., 1902.

EXHIBIT: Adult.

**POTATO-TUBER WORM; TOBACCO SPLIT-WORM.**

*Phthorimaea operculella* Zell.

(Formerly *Lita* and *Gelechia solanella*. Works in stems and tubers.)  
For general account see Riley and Howard, Insect Life, v. IV, pp. 239-242, 1892; Howard, Farmers' Bul. 120, U. S. Dept. Agric., pp. 19-22, 1900.

EXHIBIT: Adult and figure.

**THE POTATO-STALK WEEVIL.**

*Trichobaris trinotata* Say.

For life history and general account see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 9-19, 1902.

EXHIBIT: Adult and work.

**STALK-BORER.**

*Papaipema nitela* Guen.

(Formerly *Gortyna* and *Hydracia*. Bores in stems of various plants.)  
For general account see Bird, Can. Ent., v. XXX, pp. 127-128, 1898.  
EXHIBIT: Adult.

**THE LITTLE GREEN TORTOISE-BEETLE.**

*Cassida pallidula* Boh.

(Formerly *C. texana*.)

For short account see Riley, Amer. Nat., v. 17, p. 1070, October [17 Sept.], 1883.

EXHIBIT: Adult.

**THE GOLDEN TORTOISE-BEETLE.**

*Coptocycla bicolor* Fab.

(Formerly *C. aurichalcea*.)

For general account see Sanderson, Bul. 59, Md. Agr. Expt. Sta., pp. 139-140, 1899.

EXHIBIT: Adult.

**COLORADO POTATO-BEETLE.**

*Leptinotarsa decemlineata* Say.

(Formerly *Doryphora*.)

For general account of life history see Smith, Rpt. N. J. Agric. Expt. Sta., 1895, pp. 452-458, 1896.

EXHIBIT: Egg, larva, pupa, adult, figure, and the following enemies: *Brachinus kansanus* Lec., *Chilocorus bipustulatus* Mels., *Coccinella sanguinea* Linn., *Coccinella novemnotata* Hbst., *Harpalus caliginosus* Fab., *Hippodamia convergens* Gér., *Hippodamia glacialis* Fab., *Lebia atriventris* Say, *Lebia grandis* Htz., *Megilla maculata* DeG., *Nezara hilaris* Say, *Pasimachus elongatus* Lec., *Podisus spinosus* Dall., *Polistes pallipes* Lep., and *Tetracha virginica* Linn.

**BOGUS POTATO-BEETLE.**

*Leptinotarsa juncta* Germ.

(This species exhibited merely on account of similarity to preceding species. It feeds on wild Solanums.)

EXHIBIT: Adult.

**THREE-LINED POTATO-BEETLE.**

*Lema trilineata* Oliv

For general account see Riley, 1st. Rpt. St. Ent. Mo., pp. 99-100, 1869.

EXHIBIT: Adult and figure.

**THE WHITE BLISTER-BEETLE.**

*Macrobasis albida* Say.

For brief account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 26, 1903.

EXHIBIT: Adult.

**THE ASH-GRAY BLISTER-BEETLE.**

*Macrobasis unicolor* Kby.

For general account see Chittenden, Yearbook, U. S. Dept. Agric., 1898, pp. 249-250.

EXHIBIT: Adult.

**THE STRIPED BLISTER-BEETLE.**

*Epicauta vittata* Fab.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 22-23, 1903.

EXHIBIT: Adult.

**BLACK BLISTER-BEETLE.**

*Epicauta pennsylvanica* DeG.

For brief account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 25, 1903.

EXHIBIT: Adult.

**THE CROW BLISTER-BEETLE.**

*Epicauta corvina* Lec.

For brief notice see Comstock, Rpt. U. S. Comm. Agric., 1879, p. 251, 1880.

EXHIBIT: Adult.

**THE MARGINED BLISTER-BEETLE.**

*Epicauta cinerea* Först.

For brief account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., p. 24, 1903.

EXHIBIT: Adult.

**THE SPOTTED BLISTER-BEETLE.***Epicauta maculata* Say.

For general accounts see Saunders, Bul. 57, S. Dak. Agric. Expt. Sta., p. 52, 1898; Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 24-25, 1903.

EXHIBIT: Adult and figure.

**THE EGG-PLANT FLEA-BEETLE.***Epitrix fuscula* Cr.

For general account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 87-89, 1899.

EXHIBIT: Adult.

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**INSECTS INJURIOUS TO SWEET POTATOES.**

For general bulletin see Sanderson, Sweet Potato Insects, Bul. 59, Md. Agric. Expt. Sta., 1900.

**SWEET-POTATO ROOT-BORER.***Cylas formicarius* Fab.

EXHIBIT: Adult and work.

**SWEET-POTATO HAWK-MOTH.***Phlegethonius cingulata* Fab.

EXHIBIT: Adult.

**THE SWEET-POTATO PLUME-MOTH.***Pterophorus monodactylus* Linn.

EXHIBIT: Adult.

**LARGER SWEET-POTATO SAWFLY.***Schizoceris privatus* Nort.

For general account see Marlatt, Insect Life, v. V, pp. 24-27, fig. 6, 1892.

EXHIBIT: Adult and figure.

**SWEET-POTATO FLEA-BEETLE.***Chætocnema confinis* Cr.

EXHIBIT: Adult.

**THE CUCUMBER FLEA-BEETLE.***Epitrix cucumeris* Harr.

For short account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 89-90, 1899.

EXHIBIT: Adult.

**THE MOTTLED TORTOISE BEETLE.***Coptocycla signifera* Hbst.

(Formerly called *C. guttata*.)

EXHIBIT: Adult.

**BLACK-LEGGED TORTOISE BEETLE.***Cassida nigripes* Oliv.

EXHIBIT: Adult and work.

**TWO-STRIPED TORTOISE BEETLE.***Cassida bivittata* Say.

EXHIBIT: Adult.

**THE GREEN TORTOISE BEETLE.***Physonota unipunctata* Say.

For brief notices see Hamilton, Canad. Ent., v. XVI, pp. 134-135, 1884, and Caulfield, l. c., p. 227.

EXHIBIT: Adult.

**THE ARGUS TORTOISE BEETLE.***Chelymorpha argus* Licht.(Also called *C. cassidea*.)

EXHIBIT: Adult.

**INSECTS INJURIOUS TO TOMATO.****NORTHERN TOBACCO WORM; TOMATO WORM.***Phlegethontius quinquemaculata* Haw.(Formerly *Protoparce celeus*.)

For general account see Howard, Farmers' Bul. 120, U. S. Dept. Agric., pp. 10-14, 1900.

EXHIBIT: Larva and adult.

**SOUTHERN TOBACCO WORM; HORNBLOWER.***Phlegethontius sexta* Joh.(Formerly *Protoparce carolina*.)

For general accounts see Howard, Farmers' Bul. 120, U. S. Dept. Agric., pp. 10-14, 1900; Alwood, Bul. 17, n. s., Div. Ent., U. S. Dept. Agric., pp. 72-74, 1898.

EXHIBIT: Larva and adult.

**THE STALK BORER.***Papaipema nitela* Guen.

For general accounts see Bird, Can. Ent., v. XXX, pp. 127-128, 1898; Lugger, 4th Rpt. State Ent. Minn., pp. 167-168, 1899.

EXHIBIT: Pupa and adult.

**THE COMMELINA OWLET MOTH.***Prodenia commelinæ* S. & A.

For life history and general account see Chittenden, Bull. 27, n. s., Div. Ent. U. S. Dept. Agric., pp. 59-64, Pl. IV, fig. 1, 1901.

EXHIBIT: Larva and adult.

**CORN-EAR WORM; COTTON BOLLWORM.***Heliothis obscura* Fab.

(Feeds also on tobacco and tomato; see under cotton and corn exhibits.)

For life history and general account see Quaintance, Farmers' Bul. 191, 1904.

EXHIBIT: Larva and adult.

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**INSECTS INJURIOUS TO ASPARAGUS.**

For general article on asparagus insects see Chittenden, Bul. 10, n. s., pp. 54-62, 1898.

**THE ASPARAGUS MINER.***Agromyza simplex* Loew.

For general account see Sirrine, Bul. 189, N. Y. Agric. Exp. Stat., pp. 277-282, 1900.

EXHIBIT: Adult.

**LOPIDEA MEDIA** Say.

EXHIBIT: Adult.

**THE LESSER LOCUST.***Melanoplus atlantis* Riley.

For bibliography and general accounts see Scudder, Proc. U. S. N. M., v. XX, pp. 178-183; pl. 12, fig. 7, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 26-27, 1891.

EXHIBIT: Adult.

**THE TWO-STRIPED LOCUST.***Melanoplus bivittatus* Say.

For bibliography and general accounts see Scudder, Proc. U. S. N. M., v. XX, pp. 363-368, pl. 24, fig. 5, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 31-32, 1891.

EXHIBIT: Adult and figure.

**RED-LEGGED LOCUST.***Melanoplus femur-rubrum* DeG.

For bibliography and general accounts see Scudder, Proc. U. S. N. M., v. XX, pp. 278-285, pl. 1, fig. h; pl. 19, figs. 1-4, 1897; Riley, Bul. 25, Div. Ent., U. S. Dept. Agric., pp. 27-28, 1891.

EXHIBIT: Adult.

**MELANOPLUS PROPINQUUS** Scudd.

For original description, see Scudder, Proc. U. S. N. M., v. XX; pp. 285-286, pl. 18, fig. 9, 1897.

EXHIBIT: Adult.

**TWELVE-SPOTTED ASPARAGUS-BEETLE.***Crioceris duodecimpunctata* Linn.

For detailed account, see Chittenden, Yearbook, U. S. Dept. Agric., 1896, pp. 349-352, 1897.

**EXHIBIT:** Adult, figure, and adult of enemy, *Podisus spinosus* Dall.

**THE ASPARAGUS BEETLE.***Crioceris asparagi* Linn.

For detailed account, see Chittenden, Yearbook, U. S. Dept. Agric., 1896, pp. 341-349. For bibliography and general account, see Lintner, 11th Rept. St. Ent. N. Y., pp. 177-188, 1896.

**EXHIBIT:** Larva, adult, figure, and enemy, *Stiretrus anchorago* Fab.

**THE TWELVE-SPOTTED CUCUMBER BEETLE.***Diabrotica duodecimpunctata* Ol.

For general accounts and remedies, see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 12-13, 1903; Quaintance, Bul. 26, n. s., Div. Ent., U. S. Dept. Agric., pp. 35-40, 1900.

**EXHIBIT:** Adult and figure.

**FALSE BUD-WORM; COTTON BOLLWORM.***Heliothis obscura* Fab.

(Known also as *Heliothis armiger* Hübn. For full life-history exhibit, see under cotton and corn.)

For life history and general account, see Quaintance, Farmers' Bul. 191, U. S. Dept. Agric., 1904.

**EXHIBIT:** Adult.

**ZEBRA CATERPILLAR.***Mamestra picta* Harr.

For general account see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 42-43, 1903.

**EXHIBIT:** Larva, adult, and figure.

**THE PRETTY CUTWORM.***Mamestra legitima* Grt.

For brief account see Howard, Farmers' Bul. 120, U. S. Dept. Agric., pp. 24-25, fig. 20, 1900.

**EXHIBIT:** Larva, adult, and figure.

**CRANBERRY SPANWORM.***Cleora pampinaria* Guen.

For general account see Smith, Farmers' Bul. 178, pp. 19-21, 1903.

**EXHIBIT:** Larva, pupa, and adult.

**THE RED-BANDED LEAF-ROLLER.**

☞ *Eulia triferana* Walk.

(Formerly *Lophoderus*.)

For brief account see Lugger, 4th Rept. State Entom. Minn. p. 231, 1899.

EXHIBIT: Larva, pupa, and adult.

**THE SULPHUR-COLORED TORTRIX.**

*Epagoge sulfureana* Clem.

(Formerly *Dichelia*.)

For brief account see Lugger, 4th Rept. State Entom. Minn., pp. 232-233, 1899.

EXHIBIT: Pupa and adult.

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**INSECTS INJURIOUS TO CUCURBITS.****SQUASH-VINE BORER.**

*Melittia satyriniformis* Hübn.

(Formerly *Aegeria cucurbitæ*.)

For life history and general accounts see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 34-40, 1899; Circ. 38, Div. Ent., U. S. Dept. Agric., 1899.

EXHIBIT: Larva, pupa, cocoon, adult, and figure.

**PICKLE WORM.**

*Diaphania nitidalis* Cram.

(Formerly *Eudiopsis* and *Margaronia*.)

For general accounts and bibliography see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 40-42, 1899; Lintner, 11th Rpt. N. Y. St. Ent., pp. 126-133, 1896.

EXHIBIT: Pupa, cocoon, adult, and figure.

**MELON CATERPILLAR.**

*Diaphania hyalinata* Linn.

For general accounts and bibliography see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 42-44, 1899; Lintner, 11th Rpt. N. Y. St. Ent., pp. 134-138, 1896.

EXHIBIT: Larva, pupa, adult, and figure.

**NORTHERN LEAF-FOOTED PLANT-BUG.**

*Leptoglossus oppositus* Say.

For life history and general account see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 18-25, 1902.

EXHIBIT: Nymph, adult, and figure.

**STRIPED CUCUMBER BEETLE.***Diabrotica vittata* Fab.

For general accounts see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 48-51, 1899; Cir. 31, Div. Ent., U. S. Dept. Agric., 1898.

EXHIBIT: Adult, work, and figure.

**TWELVE-SPOTTED CUCUMBER BEETLE.***Diabrotica duodecimpunctata* Oliv.

For general articles see Chittenden, Bul. 43, Div. Ent., U. S. Dept. Agric., pp. 12-13, 1903; Quaintance, Bul. 26, n. s., pp. 35-40, 1900.

EXHIBIT: Adult.

**THE CUCUMBER FLEA-BEETLE.***Epitrix cucumeris* Harr.

For short account see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 89-90, 1899.

EXHIBIT: Adult and figure.

**THE PUNCTURED FLEA-BEETLE.***Psylliodes punctulata* Mels.

For brief account see Forbes and Hart, 21st Rpt. St. Ent. Ill., p. 124, 1900.

EXHIBIT: Adult.

**THE HORNED SQUASH-BUG.***Anasa armigera* Say.

For general accounts see Chittenden, Can. Ent., v. XXX, pp. 239-240, 1898; Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 28-34, 1899.

EXHIBIT: Eggs, nymph, adult, and figure.

**THE COMMON SQUASH-BUG.***Anasa tristis* De G.

For general accounts see Chittenden, Circ. 39, Div. Ent., U. S. Dept. Agric., 1899; Bul. 19, n. s., pp. 20-28, 1899.

EXHIBIT: Eggs, nymph, adult, and figure.

**THE SQUASH LADYBIRD.***Epilachna borealis* Fab.

For bibliography and life history see Chittenden, Bul. 19, n. s., Div. Ent., U. S. Dept. Agric., pp. 11-20, 1899.

EXHIBIT: Larva, pupa, adult, and work.

## INSECTS INJURIOUS TO OTHER VEGETABLE PRODUCTS.

### INJURING CARROT, CELERY, PARSLEY, AND PARSNIP.

#### **THE CELERY LOOPER.**

*Plusia simplex* Guen.

For general account see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 73-74, 1902.

**EXHIBIT:** Adult and figure.

#### **THE GREENHOUSE LEAF-TYER.**

*Phlyctaenia ferrugalis* Hübñ.

For detailed account (under *P. rubigalis* Guen.) see Chittenden, Bul. 27, n. s., Div. Ent., U. S. Dept. Agric., pp. 7-26, 1901.

**EXHIBIT:** Larva, cocoon, adult, and figure.

#### **THE CELERY CATERPILLAR.**

*Papilio polyxenes* Fab.

(Formerly called *P. asterias*.)

For general account see Davis, Bul. 102, Mich. Agric. Expt. Sta., pp. 21-24, 1893.

**EXHIBIT:** Larva, adult and chrysalis.

#### **THE CARROT RUST-FLY.**

*Psila rosae* Fab.

For general article see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 26-32, 1902.

**EXHIBIT:** Adult and figure.

#### **THE CARROT BEETLE.**

*Ligyrus gibbosus* DeG.

For general account see Chittenden, Bul. 33, n. s., Div. Ent., U. S. Dept. Agric., pp. 32-37, 1902.

**EXHIBIT:** Adult and figure.

#### **THE PARSNIP WEBWORM.**

*Depressaria heracliana* DeG.

For general accounts see Riley, Insect Life, v. I, pp. 94-98, 1888; Southwick, Insect Life, v. V, pp. 106-109, 1892.

**EXHIBIT:** Larva, pupa, adult, work, and figure.

#### **THE PARSNIP LEAF-MINER.**

*Acidia fratria* Loew.

(Formerly known as *Trypeta*.)

For short account see Coquillett, Insect Life, v. VII, pp. 383-384, 1895.

**EXHIBIT:** Adult and figure.

**THE PARSLEY ROOT-BORER.***Listronotus latiusculus* Boh.

For brief notice see Chittenden, Yearbook, U. S. Dept. Agric., 1902, p. 731.

EXHIBIT: Adult.

**THE LITTLE NEGRO BUG.***Corimelaena pulicaria* Germ.

For general account see Davis, Bul. 102, Mich. Agric. Expt. Sta., pp. 13-18, 1893.

EXHIBIT: Nymph and adult.

**DARK-SIDED CUTWORM.***Euxoa messoria*.

(Formerly *Carneades*.)

For general account see Riley, Rpt. U. S. Dept. Agric., 1884, pp. 290-291, pl. 2, fig. 6, 1885.

EXHIBIT: Adult and figure.

**INJURIOUS TO ONION.****THE WHEAT WIREWORM.***Agriotes mancus* Say.

For general account see Chittenden, Bul. 27, n. s., Div. Ent., U. S. Dept. Agric., pp. 77-78, 1901.

EXHIBIT: Adult and figure.

**TOBACCO THRIPS; ONION THRIPS.***Thrips tabaci* Lind.

For short accounts as *T. striatus* see Gillette, Bul. 47, Colo. Agric. Expt. Sta., p. 44, 1898; Howard, Farmers' Bul. 120, U. S. Dept. Agric. pp. 24-25, 1900.

EXHIBIT: Figure.

**THE CORN-STALK MAGGOT.***Chætopsis ænea* Wied.

For general account see Howard, Insect Life, v. VII, pp. 352-354, 1895.

EXHIBIT: Pupa and adult.

**THE ONION FLY.***Pegomya cepetorum* Meade.

For general account as *Phorbia ceparum* see Slingerland, Bul. 78, Cornell Univ. Agric. Expt. Sta., pp. 495-496, 1894.

EXHIBIT: Adult.

**INJURIOUS TO RHUBARB.****THE RHUBARB CURCULIO.***Lixus concavus* Say.

For general account see Chittenden, Bul. 23, n. s., Div. Ent., U. S. Dept. Agric., pp. 61-69, 1900.

EXHIBIT: Adult and figure.

**THE CONVEX FLEA-BEETLE.***Psylliodes convexior* Lec.

EXHIBIT: Adult.

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**INSECTS INJURIOUS TO ORNAMENTAL PLANTS.**

For general article on insects affecting ornamental plants see Chittenden, Bul. 27, n. s., Div. Ent., U. S. Dept. Agric., 1901.

**THE GREENHOUSE LEAF-TYER.***Phlyctænia ferrugalis* Hübn.

EXHIBIT: Larva, cocoon, adult, and figure.

**THE MORNING-GLORY LEAF-CUTTER.***Loxostege obliteralis* Walk.

EXHIBIT: Larva, cocoon, adult, and figure.

**THE ROSE BUD-WORM.***Olethreutes nimbatana* Clem.

For bibliography and general account see Lintner, 5th Rept. N. Y. St. Ent., pp. 213-215, 1889.

EXHIBIT: Pupa, adult, and figure.

**THE VIOLET SAWFLY.***Emphytus canadensis* Kby.

EXHIBIT: Adult and figure.

**FULLER'S ROSE BEETLE.***Aramigus fulleri* Horn.

EXHIBIT: Adult and figure.

**THE FICKLE MIDGE.***Sciara inconstans* Fitch.

EXHIBIT: Adult and figure.

**THE VIOLET "GALL-FLY."***Diplosis violicola* Coq.

EXHIBIT: Figure.

**THE ROSE CURCULIO.***Rhynchites bicolor* Fab.

EXHIBIT: Adult and figure.

**CALIFORNIA FLOWER BEETLE.***Hoplia callipyge* Lee.**EXHIBIT:** Adult and figure.**THE ROSE LEAF-BEETLE.***Nodonota puncticollis* Say.

For general account see Chittenden, Bull. 7, n. s., Div. Ent., U. S. Dept. Agric., pp. 60-61, 1897.

**EXHIBIT:** Adult.**THE AZALEA BARK SCALE.***Eriococcus azaleæ* Comst.

For bibliography, food plants and distribution, see Fernald, Coccidae of World, Bul. 88, Mass. Agr. Coll., p. 72, 1903.

**EXHIBIT:** Infested twig.**THE EUONYMUS SCALE.***Chionaspis euonymi* Comst.

For bibliography, food-plants, and distribution see Fernald, Coccidae of World, Bul. 88, Mass. Agr. Col., pp. 216, 1903.

**EXHIBIT:** Infested twig.**THE ROSE COTTONY SCALE.***Palaeococcus rosæ* R. & H.

For bibliography, distribution, and food plants, see Fernald, Coccidae of World, Bul. 88 Mass. Agr. Coll., p. 21, 1903. For general account see Riley and Howard, Insect Life, v. III, pp. 93-97, 1890.

**EXHIBIT:** Infested twig.**THE BLACK OR BROWN APHIS OF VIOLETS.***Rhopalosiphum violæ* Perg.

For original description with short account of injury to violets, see Pergande, Can. Ent. v. XXXII, pp. 29-30, 1900.

**EXHIBIT:** Figure.**THE TWO-SPOTTED RED SPIDER.***Tetranychus bimaculatus* Harv.

For description and distribution see Banks, Tech. Ser., 8, Div. Ent. U. S. Dept. Agric., pp. 73-74, 1900.

**EXHIBIT:** Figure.**THE WHITE ANT.***Leucotermes flavipes* Koll.

For general account see Marlatt, Circ. 50, Div. Ent. U. S. Dept. Agric., 1902.

**EXHIBIT:** Adult and figure.

### INSECTS INJURIOUS TO CRANBERRY.

For treatises on cranberry insects see Smith, Farmers' Bul. 178, U. S. Dept. Agric., 1903; Bul. 90 N. J. Agr. Exp. Sta., 1892; Saunders, Insects Injurious to Fruits, 2d ed., pp. 369-376, 1900.

#### INJURING THE LEAVES.

##### **LEATHER-COLORED LOCUST.**

*Acridium alutaceum* Harr.

EXHIBIT: Adult.

##### **THE TWO-STRIPED LOCUST.**

*Melanoplus bivittatus* Say.

For bibliography and general accounts see Scudder, Proc. U. S. N. M., v. XX, pp. 363-368, fig. 5, 1897; Riley, Bul. 25, Div. Ent. U. S. Dept. Agric., pp. 31-32, 1891.

EXHIBIT: Adult.

##### **THE ANGULAR-WINGED KATYDID.**

*Microcentrum retinerve* Burm.

EXHIBIT: Adult, eggs and parasitized eggs.

##### **THE CRANBERRY LOOPER.**

*Xanthotype crocataria* Fab.

(Formerly *Angerona*.)

For general account see Lugger, 4th Rpt. State Entom. Minn., pp. 178-179, 1899.

EXHIBIT: Adult.

##### **CHAIN-SPOTTED GEOMETER.**

*Cingilia catenaria* Dru.

(Formerly *Caterva*.)

For general account see Lugger, 4th Rpt. St. Ent. Minn., pp. 186-187, 1899; Packard, 5th Rept. U. S. Ent. Comm., pp. 783-784, 1890.

EXHIBIT: Larva, pupa, and adult.

##### **CRANBERRY SPANWORM.**

*Cleora pampinaria* Guen.

(Formerly *Boarmia*.)

For general account see Smith, Farmers' Bul. 178, U. S. Dept. Agric., pp. 19-21, 1903.

EXHIBIT: Larva, pupa, and adult.

##### **THE YELLOWHEAD CRANBERRY WORM.**

*Acleris minuta* Rob.

(Formerly *Teras*.)

For general account see Smith, Farmers' Bul. 178, U. S. Dept. Agric., pp. 12-17, 1903.

EXHIBIT: Adult and figure.

**THE VINE-WORM; THE FIRE-WORM.***Eudemis vacciniana* Pack.

For general account see Smith, Farmers' Bul. 178, U. S. Dept. Agric., pp. 9-12, 1903.

**EXHIBIT:** Larva, adult, work, and figure.

**INJURING THE STEMS.****THE CRANBERRY GIRDLER.***Crambus hortuellus* Hübn.

For general account see Smith, Farmers' Bul. 178, U. S. Dept. Agric., pp. 21-24, 1903.

**EXHIBIT:** Adult and figure.

**CRANBERRY SCALE; PUTNAM'S SCALE.***Aspidiotus cencylus* Putn.

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 252-253, 1903.

**EXHIBIT:** Infested twig from fruit tree.

**INSECTS INJURING THE FRUIT.****THE CRANBERRY FRUIT WORM.***Mineola vaccinii* Riley.

For general account see Smith, Farmers' Bul. 178, U. S. Dept. Agric., pp. 24-26, 1903.

**EXHIBIT:** Pupa, cocoon, adult, and figure.

**THE CRANBERRY KATYDID.***Scudderia texensis* Sauss.

For general account see Smith, Farmers' Bul. 178, U. S. Dept. Agric., pp. 26-29, 1903.

**EXHIBIT:** Adult and figure.

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**INSECTS INJURIOUS TO STRAWBERRY.**

For general articles treating of these insects see Forbes, 13th Rpt. Ill. St. Ent., pp. 60-180, 1884; Saunders, Insects Injurious to Fruits, 2d ed., pp. 321-335, 1900.

**INJURING THE ROOTS AND CROWN.****THE STRAWBERRY CROWN-GIRDLER.***Otiorhynchus ovatus* Linn.

For brief bibliography and account see Lintner, 10th Rpt. St. Ent. N. Y., pp. 416-419, 1895.

**EXHIBIT:** Adult.

**THE STRAWBERRY CROWN-BORER.***Tyloderma fragariæ* Riley.

For detailed accounts see Forbes, 12th Rpt. Ill. St. Ent., pp. 64–75, 1883; 13th Rpt., p. 142, 1884.

EXHIBIT: Adult, work, and figure.

**STRAWBERRY CROWN MOTH.***Egeria rutilans* Hy. Edw.

(Formerly *Sesia*.)

For general account see Chittenden, Bul. 23, n. s., Div. Ent., U. S. Dept. Agric., pp. 85–90, 1900.

EXHIBIT: Adult, pupa, and work.

**THE SPOTTED STRAWBERRY LEAF-BEETLE.***Typophorus canellus* Fab.

For general account see Forbes, 13th Rpt. St. Ent. Ill., pp. 159–163, 1884.

EXHIBIT: Adult.

**INJURING THE ROOTS.****WHITE GRUB; JUNE BEETLE.***Lachnostenra arcuata* Sm.

For general account see Chittenden, Bul. 27, n. s., Div. Ent., U. S. Dept. Agric., pp. 74–76, 1901.

EXHIBIT: Adult and figure.

**THE STRAWBERRY ROOT-BORER.***Graphops nebulosus* Lec.

For brief notice see Garman, Bul. 31, Ky. Agric. Exp. Sta., p. 23, 1890.

EXHIBIT: Adult.

**INJURING THE LEAVES.****THE STRAWBERRY FALSE-WORM.***Harpiphorus maculatus* Nort.

For general account see Harrington, Insect Life, v. II, pp. 227–228, 1890.

EXHIBIT: Larva, pupa, adult, work, and figure.

**THE STRAWBERRY LEAF-CHAFER.***Diplotaxis frondicola* Say.

For brief account see Kridelbaugh, Ann. Rpt. Ia. St. Hort. Soc., 1871, p. 161, 1872.

EXHIBIT: Adult and work.

**THE STRAWBERRY FLEA-BEETLE.***Haltica ignita* Illig.

For general account see Chittenden, Bul. 23, n. s., Div. Ent., U. S. Dept. Agric., pp. 70–78, 1900.

EXHIBIT: Adult.

**THE ROSE LEAF-BEETLE.***Nodonota puncticollis* Say.

For general account see Chittenden, Bul. 7, n. s., Div. Ent., U. S. Dept. Agric., pp. 60-61, 1897.

EXHIBIT: Adult.

**THE DUSKY PLANT-BUG.***Calocoris rapidus* Say.

For short account see Lugger, 1st Rpt. St. Ent. Minn., p. 65, 1900.

EXHIBIT: Adult.

**RASPBERRY LEAF-ROLLER.***Exartema permundana* Clem.

For general account see Packard, 5th Rpt. U. S. Ent. Comm., pp. 312-313, 1890.

EXHIBIT: Adult.

**THE STRAWBERRY LEAF-ROLLER.***Ancylis comptana* Fröhl.

(Formerly *Phoxopteris*.)

For general account see Smith, Bul. 149, N. J. Agrie. Expt. Sta., pp. 3-12, 1901.

EXHIBIT: Larva, pupa, adult, and figure.

**THE SMEARED DAGGER.***Apatela obliquata* S. & A.

For general account see Packard, 5th Rept. U. S. Ent. Comm., pp. 567-568, 1890.

EXHIBIT: Larva, adult and figure.

**INJURING THE BUDS AND STEMS.****THE STRAWBERRY WEEVIL.***Anthonomus signatus* Say.

(Lays eggs in buds and severs stems.)

For general account see Chittenden, Circ. 21, Div. Ent., U. S. Dept. Agric., 1897.

EXHIBIT: Adult, work, figure, and the parasites *Calyptus tibiator* Cr. and *Catolaccus incertus* Ashm.

**INSECTS INJURIOUS TO BLACKBERRY AND RASPBERRY.**

For general articles see Webster, Bul. 45, Ohio Agrie. Expt. Sta., pp. 151-217, 1893; Saunders, Insects Injurious to Fruits, 2d edit., pp. 303-320, 1900.

**INJURING THE ROOTS.****THE RASPBERRY ROOT-BORER.***Bembecia marginata* Harr.

For general account see Smith, Spec. Bul. N, N. J. Agrie. Expt. Sta., pp. 9-12, 1891.

EXHIBIT: Larva and adult.

**INJURING THE STEMS.****BLACKBERRY GALL-MAKER.***Diastrophus turgidus* Bass.(Also called *D. nebulosus* O. S.)

For brief article see Saunders, Insects Injurious to Fruits, 2d ed., pp. 318-319, 1900.

EXHIBIT: Adult and figure.

**RASPBERRY CANE-BORER.***Oberea bimaculata* Oliv.

For bibliography and general account see Lintner, 5th Rpt. N. Y. St. Ent., pp. 231-233, 1889.

EXHIBIT: Adult and work.

**THE SNOWY TREE-CRICKET.***Ecanthus niveus* De G.

For general account see Lugger; 3d Rpt. St. Ent. Minn., pp. 269-271, 1898.

EXHIBIT: Adult, work, and figure.

**RED-NECKED CANE-BORER.***Agrilus ruficollis* Fab.

For general account see Smith, Spec. Bul. N. N. J. Agric. Expt. Sta., pp. 4-8, 1891.

EXHIBIT: Adult, work, and figure.

**INJURING THE LEAVES.****THE RASPBERRY SAWFLY.***Monophadnoides rubi* Harris.

For bibliography and general account see Lowe, Bul. 150, N. Y. Agric. Expt. Sta., pp. 249-262, pls. IV-VI, 1898.

EXHIBIT: Larva, adult, and work.

**RASPBERRY LEAF-ROLLER.***Exartema permundana* Clem.

For general account see Packard, 5th Rpt. U. S. Ent. Comm., pp. 312-313, 1890.

EXHIBIT: Adult.

**THE FALL WEBWORM.***Hyphantria cunea* Dru.

(Feeds on leaves of various trees, shrubs, and vines.)

For general account see Howard, Farmers' Bul. 99, U. S. Dept. Agric., pp. 20-25, 1899.

EXHIBIT: Adult and figure.

**THE SMEARED DAGGER.***Apatela obliqua* S. & A.

For general account see Packard, 5th Rpt. U. S. Ent. Comm., pp. 567-568, 1890.

EXHIBIT: Larva and adult.

**STRAWBERRY LEAF-ROLLER.***Ancylis comptana* Fröhl.(Formerly *Phoxopteris*.)

For general account see Smith, Bul. 149, N. J. Agric. Expt. Sta., pp. 3-12, 1901.

EXHIBIT: Pupa and adult.

**THE FOUR-MARKED LEAF-BEETLE.***Cryptocephalus quadrimaculatus* Say.

EXHIBIT: Adult.

**THE HOODED PLANT-BUG.***Euthocatha galeator* Fab.

For brief notices see Riley and Howard, Insect Life, v. I, p. 54, 1888; p. 366, 1889.

EXHIBIT: Eggs, nymph, and adult.

**INJURING THE FRUIT.****RASPBERRY SPAN-WORM.***Synchlora aerata* Fab.(Formerly called *S. glaucaria*.)

For bibliography and general account see Lintner, 8th Rpt. St. Ent. N. Y., pp. 129-133, 1893.

EXHIBIT: Pupa, adult, and figure.

**THE LITTLE NEGRO BUG.***Corimelæna pulicaria* Germ.

For general account see Lintner, 8th Rpt. St. Ent. N. Y., pp. 213-214, 1893.

EXHIBIT: Adult and figure.

**INSECTS INJURIOUS TO CURRANT AND GOOSEBERRY.**

For general article on insects affecting currant and gooseberry see Piper and Doane, Bul. 36, Washington Agr. Expt. Sta., 1898.

**INJURING THE STEMS.****THE TERRAPIN SCALE.***Eulecanium nigrofasciatum* Perg.(Food plants: Apple, birch, linden, maple, peach, plum, sycamore; formerly a *Lecanium*.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., p. 191, 1903; Pergande, Bul. 18, n. s., Div. Ent. U. S. Dept. Agr., pp. 26-29, figs. 1898.

EXHIBIT: Infested twig.

**THE NATIVE CURRANT STEM-BORER.***Psenocerus supernotatus* Say.

For general account see Lugger, 5th Rept. State Entom. of Minnesota, pp. 121-122, 1899.

EXHIBIT: Adult and work.

**CURRENT CLEARWING MOTH; IMPORTED CURRANT-BORER.***Sesia tipuliformis* Clerck.

For general account see Lugger, 4th Rpt. State Entom. Minn., pp. 60-64, 1899.

EXHIBIT: Adult and work.

**PUTNAM'S SCALE; CRANBERRY SCALE.***Aspidiotus aencylus* Putn.

(Food-plants: Apple, apricot, box-elder, cottonwood, cranberry, elm, hemlock, maple, oak, peach, pear, plum, etc.)

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 252-253, 1903.

EXHIBIT: Infested twig.

**THE SAN JOSE SCALE.***Aspidiotus perniciosus* Comst.

(Food plants: Almond, apple, apricot, birch, black walnut, black currant, catalpa, chestnut, crab apple, crab grass, cherry, grape, hickory, oak, peach, pear, persimmon, plum, poplar, prune, Rocky Mountain cherry, rose, silver maple, willow, and many other plants. See under "More important scale insects.")

For bibliography and food plants see Fernald, Cat. Coccidæ of World, Bul. 88, Mass. Agr. Coll., pp. 271-275, 1903; Howard and Marlatt, Bul. 3, n. s., Div. Ent., U. S. Dept. Agr., 1896. 80 pp.

EXHIBIT: Infested twig.

**THE BLACK GOOSEBERRY BORER.***Xylocrius agassizii* Lec.

For general accounts see Fletcher, Rept. of Entom. and Bot. for 1898, Can. Dept. Agric., pp. 207-210, 1899; Chittenden, Bul. 23, n. s., Div. Ent., U. S. Dept. Agric., pp. 90-92, 1900.

EXHIBIT: Adult and figure.

**INJURING THE LEAVES.****GOOSEBERRY SPANWORM.***Cymatophora ribearia* Fitch.

For short account see Lugger, 4th Rpt. State Entom. Minn., pp. 184-186, 1899.

EXHIBIT: Eggs, larva, pupa, adult, and figure.

**IMPORTED CURRANT WORM.***Pteromus ribesii* Scop.(Formerly known as *Nematus ventricosus*.)

For bibliography and technical description see Marlatt, Tech. Series 3, Div. Entom., U. S. Dept. Agric., pp. 61-63, 1896.

EXHIBIT: Adult, figure, and an enemy, *Podisus placidus* Uhl.**THE NATIVE CURRANT WORM.***Pristiphora grossulariae* Walsh.For bibliography see *Gymnonychus appendiculatus* Htg., Marlatt, Tech. Series 3, Div. Entom., U. S. Dept. Agric., p. 124, 1896.

EXHIBIT: Adult and figure.

**THE CRANBERRY LOOPER.***Xanthotype crocataria* Fab.

For general account see Lugger, 4th Rpt. State Entom. Minn., pp. 178-179, 1899.

EXHIBIT: Larva and adult.

**POLYGONIA PROGNE** Cram.(Formerly *Grapta*.)

For general account see Packard, 5th Rpt. U. S. Entom. Comm., pp. 241, 1890.

EXHIBIT: Larva, chrysalis, and adult.

**INJURING THE FRUIT.****GOOSEBERRY FRUIT-WORM.***Zophodia grossulariae* Pack.

For general account see Lugger, 4th Rpt. State Entom. Minn., pp. 214-216, 1899.

EXHIBIT: Pupa and adult.

**INSECTS INJURIOUS TO STORED PRODUCTS.**(See also *Calandra oryza*, under Rice.)**THE WOLF MOTH.***Tineo granella* Linn.

For general account see Chittenden, Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., pp. 31-34, 1897.

EXHIBIT: Pupa and adult.

**MEDITERRANEAN FLOUR MOTH.***Ephestia kuehniella* Zell.

For general account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., pp. 8-9, 1897.

EXHIBIT: Larva, pupa, cocoon, adult, and figure.

**DRIED-CURRENT MOTH.***Ephestia cautella* Wlk.

For short account (under *E. cahiritella*) see Chittenden; Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., pp. 7-9, 1897.

EXHIBIT: Larva, adult, and figure.

**THE MEAL SNOUT-MOTH.***Pyralis farinalis* Linn.

(Formerly *Asopia*.)

For short account see Chittenden, Farmers' Bul. 45, pp. 10-11, 1897.

EXHIBIT: Larva, pupa, cocoon, and adult.

**THE INDIAN-MEAL MOTH.***Plodia interpunctella* Hübn.

(Formerly *Ephestia*.)

For general account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., pp. 9-10, 1897.

EXHIBIT: Larva, pupa, adult, work, and figure.

**ANGOUMOIS GRAIN-MOTH.***Sitotroga cerealella* Oliv.

(Formerly *Gelechia*.)

For general account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., pp. 6-7, 1897.

EXHIBIT: Cocoon, adult, work, and figure.

**THE FOREIGN GRAIN-BEETLE.***Cathartus advena* Waltl.

For short account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., pp. 17-18, 1897.

EXHIBIT: Adult, work, and figure.

**RED OR SQUARE-NECKED GRAIN-BEETLE.***Cathartus gemellatus* Duv.

For short account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., p. 17, 1897.

EXHIBIT: Adult and figure.

**THE SAW-TOOTHEDED GRAIN-BETTELLE.***Silvanus surinamensis* Linn.

For short account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., pp. 16-17, 1897.

EXHIBIT: Adult and figure.

**THE MERCHANT GRAIN-BEETLE.***Silvanus mercator* Fauv.

For short account see Chittenden, Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., p. 12, 1897.

EXHIBIT: Adult.

**PHARAXONOTHA KIRSCHII Reitt.**

For short notice see Chittenden, Insect Life, v. VII, p. 327, 1895.  
**EXHIBIT:** Adult.

**THE FLAT GRAIN-BEETLE.**

*Læmophloeus pusillus* Sch.

For short account see Chittenden, Bul. 4, n. s., rev. ed., Div. Ent., U. S. Dept. Agric., p. 129, 1902.

**EXHIBIT:** Adult.

**TYPHOEA FUMATA Linn.**

**EXHIBIT:** Adult and work.

**THE BLACK CARPET BEETLE.**

*Attagenus piceus* Oliv.

For general account see Chittenden, Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., pp. 15-19, 1897.

**EXHIBIT:** Adult.

**TROGODERMA TARSALE Mels.**

For general account see Chittenden, Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., pp. 19-21, 1897.

**EXHIBIT:** Adult.

**THE CABINET BEETLE.**

*Anthrenus verbasci* Linn.

(Formerly *A. varius*.)

For short account see Chittenden, Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., pp. 22-23, 1897.

**EXHIBIT:** Adult and work.

**THE MEAL SAP-BEETLE.**

*Carpophilus dimidiatus* Fab.

**EXHIBIT:** Adult.

**THE CORN SAP-BEETLE.**

*Carpophilus pallipennis* Say.

**EXHIBIT:** Adult.

**THE CADELLE.**

*Tenebroides mauritanicus* Linn.

(Formerly *Trogosita*.)

For general account see Chittenden, Farmers' Bul. 45, U. S. Dept. Agric., pp. 18-19, 1897.

**EXHIBIT:** Larva, adult, work, and figure.

**THE DARK MEAL-WORM.**

*Tenebrio obscurum* Fab.

For short account see Chittenden, Farmers' Bul. 45, rev. ed., U. S. Dept. Agric., p. 15, 1897.

**EXHIBIT:** Larva, pupa, adult, and figure.

**THE YELLOW MEAL-WORM.***Tenebrio molitor* Linn.

For general account see Chittenden, Farmers' Bul. 45, rev. ed., U. S. Dept. Agric., pp. 14-15, 1897.

EXHIBIT: Larva, pupa, adult, and figure.

**THE WHITE-MARKED SPIDER-BEETLE.***Ptinus fur* Linn.

For general account see Chittenden, Bul. 4, n. s., rev. ed., Div. Ent., U. S. Dept. Agric., pp. 127-128, 1902.

EXHIBIT: Adult.

**THE BROWN SPIDER-BEETLE.***Ptinus brunneus* Dufts.

For short account see Chittenden, Bul. 4, n. s., rev. ed., Div. Ent., U. S. Dept. Agric., p. 128, 1902.

EXHIBIT: Adult.

**THE DRUG-STORE BEETLE.***Sitodrepa panicea* Linn.

(Listed as *Anobium* in foreign catalogues.)

For general account see Chittenden, Bul. 4, n. s., rev. ed., Div. Ent., U. S. Dept. Agric., pp. 124-126, 1897.

EXHIBIT: Adult, work and figure.

**THE CIGARETTE BEETLE.***Lasioderma testaceum* Dufts.

(Formerly *L. serricorne*.)

For general account see Chittenden, Bul. 4, n. s., rev. ed., Div. Ent., U. S. Dept. Agric., pp. 126-127, 1897.

EXHIBIT: Adult and figure.

**THE LARGER GRAIN-BORER.***Dinoderus truncatus* Horn.

For short account see Chittenden, Insect Life, v. VII, p. 327, 1895.

EXHIBIT: Adult.

**THE RUST-RED FLOUR-BEETLE.***Tribolium ferrugineum* Fab.

For general account see Chittenden, Farmers' Bul. 45, rev. ed., U. S. Dept. Agric., pp. 12-13, 1897.

EXHIBIT: Adult.

**THE CONFUSED FLOUR-BEETLE.***Tribolium confusum* Duv.

For general account see Chittenden, Bul. 4, n. s., rev. ed., Div. Ent., U. S. Dept. Agric., pp. 113-115, 1902.

EXHIBIT: Adult and figure.

**THE SLENDER-HORNED FLOUR-BEETLE.***Echocerus maxillosus* Fab.

For short account see Chittenden, Farmers' Bul. 45, rev. ed., U. S. Dept. Agric., p. 13, 1897.

**EXHIBIT:** Adult and figure.

**THE BROAD-HORNED FLOUR-BEETLE.***Echocerus cornutus* Fab.

For short account see Chittenden, Farmers' Bul. 45, rev. ed., U. S. Dept. Agric., p. 13, 1897.

**EXHIBIT:** Adult and figure.

**THE SMALL-EYED FLOUR-BEETLE.***Palorus ratzeburgi* Wissm.

For short account see Chittenden, Farmers' Bul. 45., rev. ed., U. S. Dept. Agric., pp. 13-14, 1897.

**EXHIBIT:** Adult and figure.

**THE DEPRESSED FLOUR-BEETLE.***Palorus subdepressus* Woll.

**EXHIBIT:** Adult.

**ALPHITOBIUS PICEUS** Ol.

**EXHIBIT:** Adult.

**BROAD-NOSED GRAIN WEEVIL.***Caulophilus latinasus* Say.

For general account see Chittenden, Bul. 8, n. s., Div. Ent., U. S. Dept. Agric., pp. 13-14, 1897.

**EXHIBIT:** Adult.

**THE GRANARY WEEVIL.***Calandra granaria* Linn.

(For the most important enemy of stored grain, see *C. oryza*, under "Rice.")

For short account, see Chittenden, Farmers' Bul. 45, rev. ed., U. S. Dept. Agric., pp. 4-5, 1897.

**EXHIBIT:** Adult, work and figure.

**BRACHYTARSUS ALTERNATUS** Say.

For life history, notes, and general accounts, see Quaintance, Ent. News, pp. 1-3, plate, 1897.

**EXHIBIT:** Adult and figure.

**HOUSEHOLD INSECTS.**

For general account of household insects see Howard, Marlatt, and Chittenden, Bul. 4, n. s., rev. ed., Div. Ent., U. S. Dept. Agric., 1902. Contains articles on all the insects represented in the exhibit.

**THE HOUSE CENTIPEDE.***Scutigera forceps* Raf.

(While this animal is not an insect, but belongs to the class Myriapoda, it is so regularly associated with the insects that it may appropriately be presented with them. It feeds on flies, moths, roaches, etc.)

For general article see Marlatt, Circ. 48, Div. Ent., U. S. Dept. Agric., 1902.

**EXHIBIT:** Figure.

**THE SILVER FISH.***Lepisma domestica* Pack.

For general article see Marlatt, Circ. 49, Div. Ent., U. S. Dept. Agric., 1902.

**EXHIBIT:** Figure.

**THE BOOK-LOUSE.***Troctes divinatoria* Müll.

(Formerly *Psocus* and *Atropos*.)

**EXHIBIT:** Figure.

**THE WHITE ANT.***Leucotermes flavipes* Koll.

(Formerly *Termes*.)

For general account see Marlatt, Circ. 50, Div. Ent., U. S. Dept. Agric., 1902.

**EXHIBIT:** Adult and figure.

**THE AMERICAN COCKROACH.***Periplaneta americana* Linn.

For general article see Marlatt, Circ. 51, Div. Ent., U. S. Dept. Agric., pp. 1-8, 1902.

**EXHIBIT:** Adult and figure.

**THE BLACK BEETLE.***Blatta orientalis* Linn.

For general article see Marlatt, Circ. 51, Div. Ent., U. S. Dept. Agric., pp. 9-10, 1902.

**EXHIBIT:** Adult and figure.

**THE CROTON BUG.***Blatella germanica* Linn.

(Formerly *Ectobia*.)

For general article see Marlatt, Circ. 51, Div. Ent., U. S. Dept. Agric., pp. 10-11, 1902.

**EXHIBIT:** Adult.

**THE HOUSE CRICKET.***Gryllus domesticus* Linn.

**EXHIBIT:** Adult.

**THE CASE-MAKING CLOTHES MOTH.***Tinea pellionella* Linn.

For general article see Marlatt, Circ. 36, Div. Ent., U. S. Dept. Agric., pp. 1-4, 1898.

EXHIBIT: Adult and figure.

**THE TAPESTRY MOTH.***Trichophaga tapetzella* Linn.

(Formerly *Tinea*.)

For general article see Marlatt, Circ. 36, Div. Ent., U. S. Dept. Agric., p. 5, 1898.

EXHIBIT: Figure.

**THE WEBBING CLOTHES MOTH.***Tineola biselliella* Hum.

(Formerly *Tinea*.)

For general article see Marlatt, Circ. 36, Div. Ent., U. S. Dept. Agric., pp. 4-5, 1898.

EXHIBIT: Adult and figure.

**THE RED-LEGGED HAM BEETLE.***Necrobia rufipes* DeG.

(Formerly *Corynetes*.)

EXHIBIT: Adult and figure.

**THE LARDER BEETLE.***Dermestes lardarius* Linn.

EXHIBIT: Adult and figure.

**THE CARPET BEETLE OR "BUFFALO MOTH."***Anthonomus scrophulariae* Linn.

For general article see Howard, Circ. 5, Div. Ent., U. S. Dept. Agric., 1894.

EXHIBIT: Adult and figure.

**THE CHEESE OR HAM SKIPPER.***Piophila casei* Linn.

EXHIBIT: Adult.

**THE FRUIT OR VINEGAR FLY***Drosophila ampelophila* Loew.

For general accounts see Howard, Bul. 4, n. s., Div. Ent., U. S. Dept. Agric., pp. 109-111, 1896; Proc. Wash. Acad. Sci., v. II, pp. 589-590, pl. 31, fig. 2, 1900.

EXHIBIT: Adult and figure.

**THE LITTLE RED ANT.***Monomorium pharaonis* Linn.

For general article see Marlatt, Circ. 34, Div. Ent., U. S. Dept., Agric., pp. 1-2, 1898. For bibliography and general account see Lintner, 11th Rept. N. Y. St. Entom., pp. 109-114, 1896.

EXHIBIT: Adult and figure.

**INSECTS WHICH MAY SPREAD DISEASE.**

General articles: Howard, Farmers' Bulletin 155, U. S. Dept. Agric., 1902; also Bul. 30, n. s., Div. Ent., U. S. Dept. Agric., pp. 39-45, 1901.

**THE YELLOW-FEVER MOSQUITO.**

*Stegomyia fasciata* Fab.

(Is the intermediate host for the parasite of yellow fever. Formerly *Culex*.)

EXHIBIT: Adult and figure.

**THE MALARIA MOSQUITO.**

*Anopheles maculipennis* Meig.

(The most important of the mosquitoes transmitting malaria. Formerly *A. quadrimaculatus*.)

EXHIBIT: Adult and figure.

**THE GREEN BOTTLE FLY.**

*Lucilia cæsar* Linn.

For general article see Howard, Circ. 35, Div. Ent., U. S. Dept. Agric., 1898.

EXHIBIT: Adult and figure.

**THE STABLE FLY.**

*Stomoxys calcitrans* Linn.

For special article see Howard, Proc. Wash. Acad. Sci., v. II, pp. 577-579, fig. 27, 1900.

EXHIBIT: Adult and figure.

**THE HIPPELATES FLY.**

*Hippelates flavipes* Loew.

(Facilitates the spread of the disease known as "pink-eye.")

EXHIBIT: Adult and figure.

**THE BROWN DUNG FLY.**

*Scatophaga furcata* Say.

EXHIBIT: Adult and figure.

**THE SHINING EXCREMENT FLY.**

*Morellia micans* Macq.

EXHIBIT: Adult and figure.

**THE LITTLE HOUSE FLY.**

*Homalomyia brevis* Rond.

EXHIBIT: Adult and figure.

**THE FRUIT OR VINEGAR FLY.**

*Drosophila ampelophila* Loew.

EXHIBIT: Adult and figure.

**THE SCREW-WORM FLY.***Chrysomyia macellaria* Fab.(Formerly *Compsomyia*.)

For special article see Howard, Proc. Wash. Acad. Sci., v. II, p. 562, 1900.

EXHIBIT: Adult and figure.

**THE CATTLE TICK.***Boophilus annulatus* Say.

(Very common on cattle below the Texas fever line, and known to be responsible for transmission of Texas fever among cattle.)

EXHIBIT: Eggs, adult, and figure.

**INSECTS WHICH DIRECTLY INJURE OR ANNOY HUMAN BEINGS.****THE HOUSE FLY.***Musca domestica* Linn.

For general article see Howard, Circ. 35, Div. Ent., U. S. Dept. Agric., 1898.

EXHIBIT: Adult and figure.

**THE SOUTHERN BUFFALO GNAT.***Simulium pecuarum* Riley.

For general article and full life history see Osborn, Bul. 5, n. s., Div. Ent., U. S. Dept. Agric., pp. 41-52, 1896.

EXHIBIT: Adult and figure.

**THE CAT AND DOG FLEA.***Ctenocephalus canis* Curtis(Formerly called *Pulex serraticeps* Gerv.)

For general account see Howard and Marlatt, Bul. 4, n. s., rev. ed., Div. Ent., U. S. Dept. Agric., pp. 24-31, 1902. For full bibliography see Baker, Proc. U. S. N. M., v. XXVII, p. 438, 1904.

EXHIBIT: Figure.

**THE BLOOD-SUCKING CONE-NOSE.***Conorhinus sanguisuga* Lee.

For general article see Howard and Marlatt, Bul. 4, n. s., rev. ed., Div. Ent., U. S. Dept. Agric., pp. 38-42, 1902.

EXHIBIT: Egg, nymph, adult, and figure.

**THE HOUSE MOSQUITO.***Culex pipiens* Linn.For general article and life history see Howard, Bul. 25, n. s., Div. Ent., U. S. Dept. Agric., pp. 22-28, 1900. Treated as *C. pungens* Wied.

EXHIBIT: Adult and figure.

**THE BEDBUG.***Klinophilus lectularia* Linn.(Formerly *Acanthia* and *Cimex*.)

For general article see Marlatt, Circ. 47, Div. Ent., U. S. Dept. Agric., 1902.

EXHIBIT: Nymph, adult, and figure.

**THE BLACK BEETLE.***Blatta orientalis* Linn.

For general article see Marlatt, Circ. 51, Div. Ent., U. S. Dept. Agric., pp. 9-10, 1902.

EXHIBIT: Adult and figure.

**THE RED BUG.***Leptus irritans* Riley.

For general article see H. Osborn, Bul. 5, n. s., Div. Ent., U. S. Dept. Agric., pp. 251-253, 1896.

EXHIBIT: Figure.

**THE HEAD LOUSE.***Pediculus capitis* DeG.

For general article see H. Osborn, Bul. 5, n. s., Div. Ent., U. S. Dept. Agric., pp. 166-167, 1896.

EXHIBIT: Figure.

**THE BODY LOUSE.***Pediculus vestimenti* Leach.

For general article see H. Osborn, Bul. 5, n. s., Div. Ent., U. S. Dept. Agric., pp. 167-168, 1896.

EXHIBIT: Figure.

**THE CRAB LOUSE.***Phthirus inguinialis* Leach.

For general article see H. Osborn, Bul. 5, n. s., Div. Ent., U. S. Dept. Agric., pp. 165-166, 1896.

EXHIBIT: Eggs, adult, and figure.

**INSECTS INJURIOUS TO DOMESTIC ANIMALS.**

For general account with illustrations of many of the insects affecting domestic animals see Osborn, Bull. 5, n. s., Div. Ent., U. S. Dept. Agric., pp. 1-302, 1896.

**THE SOUTHERN BUFFALO GNAT.***Simulium pecuarum* Riley.

EXHIBIT: Adult and figure.

**THE TURKEY GNAT.***Simulium meridionale* Riley.

EXHIBIT: Pupa, adult, and figure.

**AMERICAN GAD-FLY.***Tabanus americanus* Forst.

EXHIBIT: Adult.

**THE GRAY-STRIPED GREEN-HEAD.***Tabanus lineola* Fab.

EXHIBIT: Adult and figure.

**THE BLACK GAD-FLY.***Tabanus atratus* Linn.EXHIBIT: Larva, adult, figure, and figure of parasite *Phanurus tabanivorus* Ashm.**THE GREENHEAD.***Tabanus costalis* Wied.

EXHIBIT: Adult.

**TABANUS EXUL C. S.**

EXHIBIT: Adult.

**TABANUS PUNCTIFER O. S.**

EXHIBIT: Adult.

**TABANUS CINCTUS** Fab.

EXHIBIT: Adult.

**MEXICAN BOT-FLY.***Tabanus mexicanus* Linn.

EXHIBIT: Adult.

**THE BLACK-STRIPED GAD-FLY.***Tabanus nigrovittatus* Macq.

EXHIBIT: Adult.

**THE BLACK-STRIPED EAR-FLY***Chrysops vittatus* Wied.

EXHIBIT: Adult and figure.

**CHRYSOPS ATROPOS O. S.**

EXHIBIT: Adult.

**CHRYSOPS HILARIS O. S.**

EXHIBIT: Adult.

**THE STABLE FLY.***Stomoxys calcitrans* Linn.

For special article see Howard, Proc. Wash. Acad. Sci., v. II, pp. 577-579, fig. 27, 1900.

EXHIBIT: Adult and figure.

**THE HORSE BOT-FLY.***Gastrophilus equi* Fab.

EXHIBIT: Eggs, larva, puparia, adult, and figure.

**THE "CHIN" FLY.***Gastrophilus nasalis* Linn.

EXHIBIT: Adult.

**THE WARBLE FLY.***Hypoderma bovis* DeG.

(A European species.)

EXHIBIT: Eggs, adult and figure.

**THE OX BOT; OX WARBLE.***Hypoderma lineata* Vill.

EXHIBIT: Larva, adult, and figure.

**THE SHEEP BOT-FLY; HEAD MAGGOT.***Estrus ovis* Linn.

EXHIBIT: Larva, puparia, adult, and figure.

**THE HORN FLY.***Hæmatobia serrata* R-D.

For special article see Riley and Howard, Insect Life, v. II, pp. 93-103.

EXHIBIT: Puparium, adult, and figure.

**THE SHEEP TICK.***Melophagus orinus* Linn.

EXHIBIT: Adult and figure.

**THE SCREW-WORM FLY.***Chrysomyia macellaria* Fab.(Formerly *Compsomyia*.)

For special article see Howard, Proc. Washington Acad. Sci., v. II, p. 562, 1900.

EXHIBIT: Adult and figure.

**THE CAT AND DOG FLEA.***Ctenocephalus canis* Curtis.(Formerly called *Pulex serraticeps* Gerv.)

For full bibliography see Baker, Proc. U. S. N. M., v. XXVII, p. 438, 1904.

EXHIBIT: Figure.

**THE SUCKING HORSE-LOUSE.***Hæmatopinus asini* Linn.

EXHIBIT: Figure.

**THE SHORT-NOSED OX-LOUSE.***Hæmatopinus eurysternus* Nitsch.

EXHIBIT: Figure.

**THE LONG-NOSED OX-LOUSE.***Hæmatopinus vituli* Linn.

EXHIBIT: Adult and figure.

**THE CATTLE LOUSE.***Trichodectes scalaris* Nitsch.

EXHIBIT: Adult and figure.

**THE SHEEP LOUSE.***Trichodectes spherocephalus* Nitsch.

EXHIBIT: Adult and figure.

**TICKS INJURIOUS TO DOMESTIC ANIMALS.**

For general account, bibliography, and illustrations see Salmon and Stiles, Cattle Ticks, 17th Ann. Rept. B. A. I., U. S. Dept. Agric., pp. 380-491, 1900.

**THE CATTLE TICK.***Boophilus annulatus* Say.

(Very common on cattle below the Texas fever line and known to be responsible for transmission of Texas fever among cattle.)

EXHIBIT: Adult and figure.

**THE SOUTHERN CHICKEN TICK.***Argas miniatus* Koch.

(Also reported on cattle.)

EXHIBIT: Adult and figure.

**THE SPINOSE EAR TICK.***Ornithodoros megnini* Dugés.

(On man, cattle, horses, dogs, sheep, etc.)

EXHIBIT: Adult and figure.

**THE AMERICAN DOG TICK.***Dermacentor electus* Koch.

(On man, cattle, dogs, and horses.)

EXHIBIT: Adult and figure.

**THE NETTED TICK.***Dermacentor reticulatus* Fab.

(On man, cattle, horses, and sheep.)

EXHIBIT: Adult and figure.

**THE LONE-STAR TICK.***Amblyomma americanum* Linn.

(Not uncommon on cattle and man.)

EXHIBIT: Adult and figure.

**THE CASTOR-BEAN TICK.***Ixodes ricinus* Linn.

(On man, cats, dogs, cattle, goats, horses, rabbits, etc.)

EXHIBIT: Adult and figure.

**SPECIAL EXHIBIT OF MODELS OF INSECTS AND OF PLANTS AND  
INSECTS AFFECTING THEM.**

**YELLOW FEVER MOSQUITO.**

*Stegomyia fasciata* Fab.

Enlarged model. This mosquito transmits yellow fever and it is now the opinion of the best-posted experts that only through its bite can one contract this disease.

**MALARIA MOSQUITO.**

*Anopheles maculipennis* Meig.

Enlarged model. This and other species of Anopheles are the only known transmitters of human malaria. The parasitic organism causing malaria inhabits the red-blood cells of human beings. It is taken with the blood into the stomach of the mosquito. There it undergoes a sexual development, reproduces, and the offspring are carried with the mosquito poison into the circulation of healthy human beings.

**SALT MARSH MOSQUITO.**

*Culex sollicitans* Walk.

Enlarged model. This mosquito is not known to carry any disease, but is very annoying at many seaside resorts.

**THE HOUSEFLY.**

*Musca domestica* Linn.

Enlarged model. The housefly is not merely a nuisance, but also acts as a carrier of many diseases, especially in the United States of typhoid fever.

**HESSIAN FLY.**

*Cecidomyia destructor* Say.

One of the most injurious enemies of wheat in the Northern and Central States. The larva attacks the stem. The average yearly damage to the wheat industry in this country from this insect is \$60,000,000.

Enlarged models are exhibited of the adult fly, and of an infested stalk of wheat showing the so-called "flaxseed" stage of the insect.

Two natural-size models are exhibited, one representing a healthy, unaffected young wheat plant to contrast with the same attacked by the Hessian fly; the other illustrating the effects of the attacks of the Hessian fly.

**GRAPE-VINE TRUMPET-GALL.**

*Lasioptera viticola* O. S.

Model in wax of the abnormal growths caused by the sting of a minute dipterous insect not infrequently observed on the leaves of the grape.

**GRAPE-VINE TOMATO-GALL.***Lasioptera vitis* O. S.

Model in wax of the abnormal growths on terminal twigs of the grape, caused by the sting of a little gnat.

**GRAPE-VINE PHYLLOXERA-GALL.***Phylloxera vastatrix* Planch.

Model in wax of the galls produced by the leaf form of the grape Phylloxera, showing their characteristic appearance and disposition on the leaf.

**SOCIAL GRAPE CATERPILLAR.***Harrisina americana* Harr.

Twigs of grape-vine modeled in wax, showing the characteristic appearance and work of the larvæ and their method of feeding in uniform rows on the leaf.

**THE GRAPE-SEED WEEVIL.***Craponius inaequalis* Say.

A bunch of grapes, showing damage to the berries by the larvæ of this insect; also punctures made by the female beetle in oviposition.

**THE SILKWORM.***Bombyx (Sericaria) mori* Linn.

Enlarged model of the larva, showing its complete anatomy; the muscles, nerves, trachæ, viscera, the silk apparatus in its whole extent, the silk-secreting gland, and the gland discovered by Auzoux, which secretes a liquid, the use of which is most probably to convert the silky matter into insoluble threads. In one of the prolegs may be seen the muscles which move the claws and sucking disks which enable the animal to walk with its true feet in the air.

Enlarged models of the moths, male and female. In each model is shown the atrophy of the digestive tube and the development of the marvelous organs by which the species is perpetuated. (After Auzoux.)

**HOP PLANT-LOUSE.***Phorodon humuli* Schr.

**UNAFFECTED HOP PLANT.**—A spray of hops, modeled in wax, representing the plant as it appears in vigorous growing condition, and free from the attacks of its principal enemy, the hop plant-louse to contrast the stronger foliage and the more abundant and larger hops produced by plants from which the hop louse has been eradicated by the use of proper remedies.

**AFFECTED HOP PLANT.**—A spray of hops modeled in wax, representing the vine as it appears when attacked by the hop plant-louse, showing the blackening and discoloration of the leaves and the small and inferior hops which are also discolored and otherwise unsuitable for market.

**WINTER EGGS.**—Enlarged model of the winter eggs, which are attached by the sexual female to the terminal twigs of the plum, in crevices around the buds.

**STEM-MOTHER.**—The stout female plant-louse shown in this enlarged model hatches from the winter egg and is characterized by shorter legs and honey-tubes. It gives birth without the intervention of the male to living young, of which three generations are produced on the plum trees, the last being winged and migrating to the hop.

**WINGED MIGRANT.**—This enlarged model represents the first winged generation, the third produced on the plum. It instinctively flies to the hop plant and is the progenitor of from five to twelve wingless generations of virgin females, which infest the hop plants until autumn, and are the sole forms which depredate on the hop. In autumn the last generation again produces winged females which fly to the plum trees.

**HOP-AFFECTING STAGE.**—This enlarged model represents the structure and appearance of the five to twelve wingless generations of virgin females which people the hop plant until autumn. These are the progeny of the *winged migrants* and are the sole forms which injure the hop.

**RETURN MIGRANT.**—This enlarged model represents the last generation produced on the hop, the winged migrant form which in September returns again to the plum and gives birth to three or more young, which are the true sexual females, the first perfect sexual females produced in the cycle up to this point.

**PUPA OF RETURN MIGRANT.**—This model represents the pupal stage of the *return migrant*. The striking features are the wing pads, which with another molt become the ample flight organs seen in the model of the adult.

**TRUE SEXUAL FEMALE.**—This enlarged model represents the generation born of the return migrant, which never acquire wings and never leave the plum tree. Maturing in a few days, according to the temperature, they are fertilized by the true winged males which have been subsequently developed on the hops, and have come from the hop fields to the plum. Shortly after fertilization the winter eggs, like those with which the cycle started, are deposited.

**YOUNG SEXUAL FEMALE.**—This enlarged model represents the newly hatched stage of the only perfectly developed sexual female produced in the life cycle of this insect.

**WINGED MALE.**—This enlarged model represents the first and only male generation produced in the life cycle of the hop-plant louse. This is developed in the autumn, and flies from the hop to the plum and fertilizes the true sexual females.

**CHINCH BUG.***Blissus leucopterus* Say.

**THE EGGS.**—This enlarged model represents the form of the egg and the terminal cap. The eggs are three-hundredths of an inch long, the top being squarely docked and surrounded by four round tubercles near the center. Color from pale whitish to amber.

**FIRST LARVAL STAGE.**—This stage, represented enlarged in this model, differs from the adult in being more elongate and in having two-jointed tarsi, the head broader and more rounded and the joints of the body subequal. The prevailing color of the whole body is red.

**SECOND LARVAL STAGE.**—After the first molt the form represented in this enlarged model is assumed. The red becomes a brilliant vermillion and contrasts with the pale band across the middle of the body, while the head and prothorax are dusky and coriaceous. Two broad marks appear on the mesothorax and the second, fourth, and fifth abdominal sutures, and one at the tip of the abdomen.

**PUPA.**—The pupa shown in this enlarged model approaches still more nearly the form of the adult, and is not unlike the last larval stage except in being darker and in the appearance of wing-pads, which extend almost across the pale basal abdominal joints.

**THE IMAGO.**—The mature insect which is represented enlarged in this model is elongate, blackish, and with numerous hairs, or pubescence. Its length is about three-twentieths of an inch. The outer wings are whitish, with a strong distinctive black spot.

**THE SAN JOSE SCALE.***Aspidiotus perniciosus* Comst.

Ten enlarged models are exhibited illustrating the life cycle of this pest, which has caused more damage to the fruit industry and been the object of more legislation than any other insect. Its small size and inconspicuous appearance often leave it undetected until the infested trees are beyond recovery. The scale may be killed by fumigation or spraying.

Enlarged models are exhibited of the *first and second larval stages*, of the *young crawling larva*, *nearly full-grown larva*, *male pro-pupa*, *male pupa*, *adult male*, *adult female*, and of the *half-grown scale*, *full-grown male scale*, and *full-grown female scale*.

**THE ASIATIC LADY-BIRD.***Chilocorus similis* Rossi.

Two enlarged models are exhibited illustrating the adult and the larva of this insect, which was introduced by the U. S. Department of Agriculture from China, where it is the important agent in keeping the San José scale in check.

**THE CODLING MOTH.***Carpocapsa pomonella* Linn.

Four enlarged models illustrating the life history of this insect which is the cause of the "wormy apples." The damage from it in this country is estimated at \$11,000,000 annually.

Models are exhibited of the *larva* and of the *adult moth*; and also an enlarged section of a *piece of bark*, cut so as to show a cocoon and pupa of the codling moth beneath it, and an enlarged section of "wormy" apple showing egg, young, and mature larva and their work.

**THE MEXICAN COTTON BOLL WEEVIL.***Anthonomus grandis* Boh.

Enlarged model. This insect is a native of Cuba and Mexico; upwards of ten years ago the weevils crossed the Rio Grande near Brownsville and have now spread over nearly the entire cotton belt of Texas. Its rapid extension, great destructiveness, and the unusual difficulties in the way of its control have caused grave fears for the future of the cotton industry in the United States. The Federal Government has this year appropriated \$250,000 for combating this insect.

**THE HONEY BEE.***Apis mellifera* Linn.

Enlarged models, reproducing the insect in six different forms—queen, male, wax-worker, worker, bee with propolis, and the bee with pollen. In these are shown the external and internal characters which distinguish each type. Also a model of a comb in the same proportion, in which are seen the cells for honey, for pollen, and for the eggs to produce queens, drones, and workers, with eggs, larvæ, and pupæ in different stages of development. (After Auzoux.)

**THE EUROPEAN COCKCHAFER.***Melolontha vulgaris* Fab.

Model of the perfect insect enlarged twelve times, showing the muscles, nerves, trachea, and viscera, each model separable into as many pieces as there are organs. More than 600 detailed objects are shown, each indicated by a corresponding number.

**FLUTED SCALE.***Icerya purchasi* Mask.

Model in wax of a twig of orange infested with the fluted scale (*Icerya purchasi*) copied directly from nature, the actual scales being transferred to the model plant. Illustrates the characteristic appearance of the infested plant.

**MODEL OF NONINFESTED ORANGE.**—The model in wax contrasts with the one representing the characteristic appearance of infested plant.

Illustrations from the publications of the Division of Entomology, representing the different stages of the fluted scale and its principal enemies.

**AUSTRALIAN LADYBIRD.***Norius (Vedalia) cardinalis* Muls.(Principal enemy of the fluted scale [*Icerya purchasi*].)

Enlarged model of the adult of this insect, the introduction of which from Australia has effected what was impossible by any other means—the practical annihilation of the fluted scale in California.

Enlarged models showing structure and characteristic appearance of the larva and pupa.

**IMPORTED CurrANT WORM.***Pteronotus ventricosus* Klug.

This wax model of a currant branch illustrates the work of the imported currant worm. For extended exhibit of the insects affecting the currant see regular economic cases.

**PLUM CURCULIO.***Conotrachelus nenuphar* Hbst.

The work of the plum curculio on the fruit of the plum, apple, pear, cherry, and peach is illustrated by models. For full details as to the work of this insect see exhibit in regular economic series.

Young apples and pears, a twig of cherry and a branch of peach with ripening fruit, and twigs of plum with green and ripening fruit, illustrating the effects of punctures by the female curculio, are shown.

**THE "KISSING BUG."***Reduvius personatus* Linn.

Enlarged model of one of the group of true bugs, generally known as "assassin bugs," which of late years have acquired a certain newspaper notoriety through their supposed preference for the human lips.

They feed on other insects, which they pierce with their strong beaks; some species are frequently found in houses, attracted by light, and they may, if they believe themselves in danger, accidentally or in defense, pierce the human skin with their beaks, causing a painful wound, and often blood poisoning through the introduction of the germs of putrefaction.

**ORANGE RUST-MITE.***Eriophyes (Phytoptus) oleivorus* Ashm.

Wax models of oranges, showing work of the orange rust-mite.

**THE PARASITE CAUSING MALARIA (ÆSTIVO-AUTUMNAL FEVER).***Plasmodium malarix.*

Twenty-nine enlarged models, illustrating the life history of this parasite in the blood of man and in the mosquito (*Anopheles*).

The models exhibited show: Development of spores in the blood of

man; development of "crescent" in the blood of man; development of "gamete" in stomach of mosquito; development and fertilization of "zygote" in stomach of mosquito; development of "zygote" in stomach wall of mosquito; "zygote" filled with "blasts" and ready to burst; free endospores, free blasts, and spermatozoa.

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### RIKER MOUNTS SHOWING LIFE HISTORIES OF INSECTS.

#### LEPIDOPTERA.

<b>Eight-spotted Forester.</b>	<b>White-Marked Tussock Moth.</b>
<i>Alypia octo-maculata</i> Fab.	<i>Hemerocampa leucostigma</i> S. & A.
<b>Grapevine Hog Caterpillar.</b>	<b>Lunate Looper.</b>
<i>Ampelophaga myron</i> Cram.	<i>Homoptera lunata</i> Dru.
<b>Stigma Moth.</b>	<b>Fall Webworm.</b>
<i>Anisota stigma</i> Fab.	<i>Hyphantria cunea</i> Dru.
<b>Spring Maple Worm.</b>	<b>Fall Army Worm.</b>
<i>Anisota rubicunda</i> Fab.	<i>Laphygma frugiperda</i> S. & A.
<b>Maple Dagger Moth.</b>	<b>The Army Worm.</b>
<i>Apatela americana</i> Harr.	<i>Heliothis (Leucania) unipuncta</i> Haw.
<b>Io Moth.</b>	<b>Apple Tent-Caterpillar.</b>
<i>Automeris io</i> Fab.	<i>Malacosoma americana</i> Harr.
<b>Calleta Silkmoth.</b>	<b>The Baltimore.</b>
<i>Callosamia calleta</i> Westw.	<i>Euphydryas phaeton</i> Dru.
<b>Prometheus Silkmoth.</b>	<b>Parsnip Butterfly.</b>
<i>Callosamia promethea</i> Dru.	<i>Papilio polyxenes</i> Fab.
<b>Chainspotted Geometer.</b>	<b>Spice-Bush Swallowtail.</b>
<i>Cingilia catenaria</i> Cram.	<i>Papilio troilus</i> Linn.
<b>Hickory Horned Devil.</b>	<b>Cynthia Silkmoth.</b>
<i>Citheronia regalis</i> Fab.	<i>Philosamia cynthia</i> Dru.
<b>Cranberry Spanworm.</b>	<b>Semicolon Butterfly.</b>
<i>Cleora pampinaria</i> Guen.	<i>Polygonia interrogationis</i> Fab.
<b>Yellow-Necked Caterpillar.</b>	<b>Gipsy Moth.</b>
<i>Datana ministra</i> Dru.	<i>Portentaria dispar</i> Linn.
<b>Roller Worm.</b>	<b>Tobacco Worm.</b>
<i>Eudamus proteus</i> Linn.	<i>Phlegethonius quinquemaculata</i> Haw.
<b>Brown-Tail Moth.</b>	<b>Jorulla Silkmoth.</b>
<i>Euproctis chrysorrhæa</i> Linn.	<i>Rothschildia jorulla</i> Westw.
<b>Large Beautiful Woodnymph.</b>	<b>Orizaba Silkmoth.</b>
<i>Euthisanotia grata</i> Fab.	<i>Rothschildia orizaba</i> Westw.
<b>Mourning Cloak.</b>	<b>Polyphemus Silkmoth.</b>
<i>Euvanessa antiopa</i> Linn.	<i>Telega polyphemus</i> Cram.
<b>Oak Tussock Caterpillar.</b>	<b>The Bagworm.</b>
<i>Halcidota maculata</i> Harr.	<i>Thyridopteryx ephemeraeformis</i> Steph.
<b>Social Grape Caterpillar.</b>	<b>Luna Moth.</b>
<i>Harrisina americana</i> Guér.	<i>Tropæa luna</i> Linn,

**ORTHOPTERA.****Walking Stick.***Anisomorpha buprestoides* Stål.**Katydid.***Microcentrum retinerve* Burm.**The Soothsayers or Rearhorses.**

(Chinese and American Species.)

*Paratenodera sinensis* Sauss. and *Stagmomantis carolina* Burm.**COLEOPTERA.****Asparagus Beetles.***Crioceris asparagi* Linn. and *C. duodecimpunctata* Linn.**Elm Leaf Beetle.***Galerucella luteola* Müll.**HEMIPTERA.****SEVENTEEN-YEAR LOCUST.***Tibicen septendecim* Linn.**SILKMOTHS.****THE JAPANESE SILKMOTH.***Antheraea yamamai* Guér.**EXHIBIT:** Cocoon, adult, and figure.**THE IO MOTH.***Automeris io* Fab.**EXHIBIT:** Larva, cocoon, and adult.**THE ANGULATED SILKMOTH.***Callosamia angulifera* Wlk.**EXHIBIT:** Adult.**THE PROMETHEUS SILKMOTH.***Callosamia promethea* Dru.**EXHIBIT:** Larva, cocoon, and adult.**THE CYNTHIA SILKMOTH.***Philosamia cynthia* Dru.**EXHIBIT:** Adult.**THE GIANT INDIAN SILKWORM.***Attacus atlas* Linn.**EXHIBIT:** Adult.**THE CECROPIA SILKMOTH.***Samia cecropia* Linn.**EXHIBIT:** Cocoon, adult, and figure.**THE COLUMBIA SILKMOTH.***Samia columbia* Sm.**EXHIBIT:** Cocoon and adult.

**THE PACIFIC-COAST SILKMOTH.***Samia rubra* Behr.

EXHIBIT: Larva and adult.

**THE POLYPHEMUS SILKMOTH.***Telea polyphemus* Linn.

EXHIBIT: Cocoon, adult, and figure.

**THE LUNA SILKMOTH.***Tropaea luna* Linn.

EXHIBIT: Larva, cocoon, and adult.

**MISCELLANEOUS EXHIBITS.****SILKWORMS.**

The rearing of silkworms will be conducted on a small scale throughout the summer. Eggs will be kept in cold storage, so that all stages, from the egg to the full-grown larva spinning its cocoon, may be seen at any time during the season.

**LIVING INSECTS.**

By means of aquaria, vivaria, and other forms of insect cages living insects will be on exhibit, feeding on their natural food plants and undergoing their usual transformations.

Some of the more important economic species injuring cotton and apple will be reared on growing specimens of these plants. In the smaller aquaria may be seen stages of some of the species of mosquitoes frequenting St. Louis and vicinity.

There will also be exhibited one box illustrating the methods of mounting insects for shipment and for permanent preservation in collections; also numerous photographs showing spraying machinery, reeling of silk from cocoons, silk machinery, etc.

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